ICC Docket No. 00-0812
Verizon Exhibit No. ____

STATE OF ILLINOIS

ILLINOIS COMMERCE COMMISSION

Verizon North Inc. (f/k/a/ GTE North Incorporated) and Verizon South Inc. (formerly known as GTE South Incorporated)	)	
	)	Docket No. 00-0812
Petition seeking approval of cost studies for unbundled network elements, avoided costs and intrastate switched access services.	)	

REBUTTAL TESTIMONY OF
DAVID G. TUCEK

On Behalf of

VERIZON NORTH INC.
VERIZON SOUTH INC.
(Formerly GTE North Incorporated and GTE South Incorporated)

JANUARY 4, 2002

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is David G. Tucek. My business address is 1000 Verizon Drive, Wentzville, MO 63385.

Q. ARE YOU THE SAME DAVID G. TUCEK WHO PREVIOUSLY FILED DIRECT TESTIMONY IN THIS PROCEEDING?

A. Yes, I am.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my rebuttal testimony is to respond to the direct testimonies of Staff witnesses Koch, Zolnierek, Marshall and Buckley. With respect to Mr. Zolnierek's testimony, my rebuttal testimony only addresses those portions of his direct testimony that criticize Verizon's forward-looking cost model, ICM. The rebuttal testimony of Verizon witness Dye addresses the *pro forma* revenue analysis presented in the first five attachments to Mr. Zolnierek's direct testimony. My rebuttal testimony also responds to the direct testimonies of IRCA witness Hendricks and AT&T witness Boyles.

Q. WHAT ATTACHMENTS ARE YOU SPONSORING?

A. I am sponsoring the following attachments:

(1) Rebuttal Attachment DGT-1, "Comparison of ICM Modeled

Investment with Reproduction Cost";

(2) Rebuttal Attachment DGT-2, "Comparison of ICM Modeled Investment Under Wholesale and Retail Network Configurations";

(3) Rebuttal Attachment DGT-3, "Actual and Modeled Investment for Golconda, Illinois";

(4) Rebuttal Attachment DGT-4, "Modification of Fixed Allocator for Exclusion of Shared Costs";

(5) Rebuttal Attachment DGT-5, "Run Time Options Screen – General OSP Settings";

(6) Rebuttal Attachment DGT-6, "End-Office Switching LRSIC for Anna, Illinois"; and

(7) Rebuttal Attachment DGT-7, "Data Request Responses Relied Upon in Tucek's Rebuttal Testimony".

Note that Rebuttal Attachments DGT-3 and DGT-6 contain confidential information. Note also that the purpose of DGT-6 is to illustrate the development of the end-office switching LRSIC for a given wire center. Consequently, the actual attachment is an Excel spreadsheet that accompanies my rebuttal testimony. Finally, in the interests of a complete record, Rebuttal Attachment DGT-7 presents the data requests that I have relied upon in my testimony. Verizon asks that they be included as part of the record along with my rebuttal testimony and other rebuttal attachments.

Q. HOW IS THE REMAINDER OF YOUR REBUTTAL TESTIMONY

ORGANIZED?

A. The remainder of my testimony is organized into four major sections. First, I address the major criticisms of ICM that were presented in two or more witnesses' direct testimony. In particular, I answer the charges (1) that ICM models a "gold-plated" network that produces costs that are too high; (2) that the network modeled by ICM is incorrect; and (3) that the Company's cost study is not forward-looking and does not comply with the Commission's rules. Second, I address certain other issues raised by Staff witnesses Koch, Zolnierek, Marshall and Buckley. In particular, I respond to Ms. Marshall's recommendation to limit the allocator for the recovery of shared and common costs to 28.86 percent, and to Ms. Buckley's claim that ICM is not flexible and is difficult to use. Third, I respond to certain arguments raised in the direct testimonies of IRCA witness Hendricks and of AT&T witness Boyles. The final section of my rebuttal testimony summarizes the reasons why the criticisms levied by Staff and other parties are simply not correct and should be disregarded by the Commission.

II. THE MAJOR CRITICISMS OF ICM ARE UNFOUNDED

A. ICM Does Not Produce Costs that Are Too High

Q. WHAT MAJOR CRITICISMS OF ICM DOES THIS PORTION OF YOUR REBUTTAL TESTIMONY ADDRESS?

A. Several witnesses have claimed that ICM produces costs that are too high. For

example, Mr. Koch claims that ICM models a "gold-plated" network. (Koch Direct, p. 10). Along with Mr. Koch, Mssrs. Zolnierek and Hendricks claim that the costs produced by ICM are too high based on a comparison with existing rates. (Koch Direct, p. 9; Zolnierek Direct, Attachment 2.5; and Hendricks Direct, pp. 12-13). As I explain below, their reasoning is invalid and overlooks differences between ICM and the cost model that produced the costs upon which the current rates are based.

Closely related to the charge that ICM produces costs that are too high are criticisms that the network modeled by ICM is incorrect. (See, for example, Mr. Koch's direct testimony at pp. 14-15; Mr. Hendricks' testimony at pp. 8-11; Mr. Zolnierek's testimony at pp. 22-26; and Mr. Boyles' testimony at pp. 10-11). My rebuttal testimony below explains why ICM models the correct network, given the FCC's requirements for forward-looking economic cost studies.

Finally, several witnesses have claimed that the Company's cost study does not comply with the Commission's administrative rules for cost studies. (83 Illinois Administrative Code Part 791 -- hereinafter "Part 791"). My rebuttal testimony below responds to each instance of this charge in turn, and shows that all of the criticisms are unfounded.

Q. IS THERE ANY TRUTH TO THE ALLEGATION THAT THE NETWORK MODELED BY ICM IS GOLD-PLATED?

A. No, there is not. This can be seen by comparing the modeled investment produced

by ICM with the reproduction cost of the real-world network. As part of the development process for ICM's expense inputs, Verizon has calculated a set of composite C. A. Turner indices that restate historical book costs on a reproduction cost basis. (See Attachments J.1 and J.3 in the file "Section 7.PDF".) Rebuttal Attachment DGT-1 shows a comparison between the modeled investment used by ICM and the reproduction cost of the existing network, using both the reported year-end 1999 plant balances and the 13-month average ending in December, 1999. Across all of the accounts shown, and for just the accounts associated with the physical network, the modeled investment used by ICM is within one percent of the reproduction cost. Moreover, ICM's modeled investment for account 2212, Digital Electronic Switching, is 10 to 15 percent *below* the reproduction cost for this account. These results are hardly consistent with the charge that ICM's modeled network is "gold-plated."

Q. WHY IS THE REPRODUCTION COST OF THE EXISTING NETWORK A BENCHMARK AGAINST WHICH TO GAUGE ICM'S RESULTS?

A. The key issue in this docket is cost -- particularly the cost of the network as whole. While several parties have criticized ICM based on other characteristics, the first question that must be addressed is how the cost of the modeled network compares to the existing network overall. The only comprehensive way to do this is by measuring the network in terms of dollars. However, because the relative prices of telephone plant change through time, book investment is not suited for this purpose. The C. A. Turner indices measure this change in relative prices by account and

vintage year, and develop a dollar measure of the reproduction cost of the existing network. If modeled investment is substantially above or below the reproduction cost without some valid reason, then the efficacy of the modeling process is called into question. With respect to Illinois in particular, the two measures are very close.[1] Additionally, the modeled amount of circuit equipment is substantially below the reproduction cost of the same account in the existing network. Neither of these results support the broad claim that the modeled network is gold-plated or the specific claim that there are too many modeled DLCs.

Q. DO THE VARIOUS COMPARISONS TO VERIZON'S EXISTING LOCAL LOOP RATES SUPPORT THE CONCLUSION THAT ICM PRODUCES COSTS THAT ARE TOO HIGH?

A. No, they do not. These comparisons are based on an "apples-to-oranges" comparison of two very different costing methodologies. Without recognizing at least the major differences between these two costing methodologies, the comparisons made by Staff and the other parties tell us nothing other than that the proposed rates exceed the current rates.

Q. WHAT ARE SOME OF THE DIFFERENCES BETWEEN THE TWO COSTING METHODOLOGIES THAT MAKE IT APPEAR THAT COSTS HAVE INCREASED?

[1] Also, as I point out in the discussion of Mr. Zolnierek's testimony, the total physical quantity of modeled copper and fiber cable matches the physical quantity found in the existing network quite closely. This result reinforces the comparison of the reproduction cost of the network with the level of modeled investment.

A. The three most important relate to the modeling of operating expenses and costs, the makeup of the wire centers being modeled, and the exclusion of circuit equipment from the earlier study.

Q. HOW HAS THE MODELING OF OPERATING EXPENSES AND COSTS CHANGED FROM THE EARLIER METHODOLOGY?

A. The earlier methodology based operating expenses only on the following accounts:

(1) Digital Electronic Switching Expense (6212);

(2) Pole Expense (6411);

(3) Aerial Cable Expense (6421);

(4) Underground Cable Expense (6422);

(5) Buried Cable Expense (6423);

(6) Submarine Cable Expense (6424);

(7) Intrabuilding Network Cable Expense (6426); and

(8) Conduit System Expense (6441).

By comparison, the current methodology includes all of the above accounts in operating costs and expenses, plus all or part of the following accounts:

(1) Motor Vehicle Expense (6112);

(2) Other Work Equipment Expense (6116);

(3) Land and Building Expense (6121);

(4) Furniture and Artworks Expense (6122);

(5) Office Equipment Expense (6123);

(6) Radio Systems Expense (6231);

(7) Circuit Equipment Expense (6232);

(8) Power Expense (6531);

(9) Plant Operations Administration Expense (6534);

(10) Engineering Expense (6535);

(11) Product Management (6611);

(12) Sales (6612);

(13) Product Advertising (6613);

(14) Customer Services (6623).

(15) Human Resources (6723);

(16) Information Management (6724); and

(17) Other General and Administrative (6728).

In addition to the operating expenses associated with account 6121, the switching costs include the carrying cost of the land and buildings (accounts 2111 and 2121) associated with central offices.

The operating costs in the current study also include the carrying cost of all or part of the following plant accounts:

(1) the non-central office portion of land and buildings (2111 and 2121);

(2) Motor Vehicles (2112);

(3) Special Purpose Vehicles (2114);

(4) Garage Work Equipment (2115);

(5) Other Work Equipment (2116);

(6) Furniture (2122);

(7) Office Equipment (2123); and

(8) General Purpose Computers (2124).

The 65xx and 67xx accounts listed above, plus the carrying costs of the above 21xx plant accounts and their corresponding 61xx expense accounts, make up what ICM identifies as "shared" costs.[2] While I discuss the modeling of these costs below in my discussion of Ms. Marshall's testimony, the important thing to realize here is that these costs were excluded from the unit costs underlying the existing loop rates, but are included in the current per-unit costs. Consequently, a simple comparison between proposed and existing rates tells us very little about differences in costs.

Q. HOW HAS VERIZON'S ILLINOIS NETWORK CHANGED SINCE THE EXISTING LOCAL LOOP RATES WERE APPROVED?

A. On December 1, 2000, Verizon sold 109 wire centers to Citizens Communications Company. While this group of exchanges has been excluded from the average costs filed by the Company in this proceeding, it needs to be included in this analysis in order to put the composition of Verizon's network on the same basis as when the existing rates were approved.

Q. WHY WASN'T CIRCUIT EQUIPMENT INVESTMENT INCLUDED IN THE

[2] The 21xx accounts are referred to as "general support assets" in ICM's documentation.

EARLIER STUDY?

A. The loop costs were based on average loop length and, because none of the sampled wire centers had an average loop length greater than 12,000 feet, no circuit equipment was modeled. Additionally, the sampled loop lengths were determined by the amount of electrical resistance from the central office, which meant that loops served by fiber and by DLCs were not sampled or may have had their lengths truncated.

Q. IS IT POSSIBLE TO MODIFY THE CURRENT STUDY TO MAKE THE COMPARISON TO THE EXISTING LOOP RATES MORE VALID?

A. Yes. The first step in doing this is to look at the results ICM produces under the "Shared Costs Excluded" option, and to exclude the expenses associated with the 66xx accounts listed above. This produces an average 2-wire TELRIC of $24.11, using the 12kf, 6 mbps option consistent with the Company's filing. The second step is to modify the wire centers upon which the statewide average is based to include those offices that have since been sold to Citizens. This change, in conjunction with the selection of the "Shared Costs Excluded" option and removal of the 66xx accounts, produces a 2-wire loop TELRIC of $25.27. Finally, by excluding loops served by DLCs from the calculated average and selecting ICM's 18kf option, it is possible to eliminate the circuit equipment investment associated with the loop from the current study, and to mirror the population from which sampled loops were drawn. All of the above changes move the current study closer to the methodology

of the earlier one, and produces an average 2-wire loop cost of $15.48.

Q. WOULD COMPARING THIS ADJUSTED LOOP COST TO VERIZON'S RESIDENTIAL ACCESS LINE RATE, AS MR. HENDRICKS HAS DONE AT PAGES 12 and 13 OF HIS DIRECT, BE VALID?

A. No. The existing rates include both the loop and the port, so that the port TELRIC of $1.50 that results from all of the above adjustments must be added to the adjusted loop costs. This produces a combined adjusted loop and port cost of $16.98. Additionally, it is incorrect to add the federal subscriber line charge (SLC) to the existing rates as Mr. Hendricks has suggested, since the SLC was not subtracted from the combined loop and port LRSICs.[3] Finally, rather than comparing the adjusted loop and port costs to just the highest existing rate of $16.99, it is necessary to compute an average that reflects the $15.99 rate that applied to the then-existing four Class A wire centers.

Q. WHAT ARE THE RESULTS OF THE ABOVE ADJUSTMENTS?

A. The weighted average of the existing $16.99 and $15.99 monthly rates is $16.89 per line. Thus, the adjusted loop plus port cost produced by ICM is only 9 cents higher – a long way from the $10 that Mr. Hendricks cites to support his claim that ICM produces costs that are too high. When the major differences underlying the two costing methodologies are accounted for, the increase in cost is less than 1 percent.

[3] Note that adding the SLC to the existing rates would overstate the costs produced by the earlier methodology. Note also that no contribution to shared and common costs were included in the existing rates, so that this issue is not relevant to this discussion.

Clearly, ICM is not flawed and cannot be rejected for the reasons cited by Mssrs. Koch and Hendricks.

Q. WOULD ANY OF THESE PROPOSED ADJUSTMENTS BE RELEVANT TO A COMPARISON OF ICM'S LRSIC PLUS COMMON COST RESULTS WITH VERIZON'S EXISTING INTRASTATE RATES FOR SWITCHED ACCESS?

A. Yes. The current switched access rates were based on costs submitted in consolidated Docket 97-0601/0602/0516, and were effective on May 27, 2000. The major difference between ICM and the methodology underlying the earlier study is that the earlier study did not include the costs that ICM identifies as "shared" costs. Mr. Zolnierek has compared the existing intrastate switched access rates to ICM's LRSIC plus common results in Attachment 2.5 of his direct testimony. While Mr. Dye's rebuttal testimony addresses the validity of the analysis presented in the corresponding section of Mr. Zolnierek's direct testimony, it is important to note that one cannot simply compare the existing rates with ICM's cost results and draw conclusions about ICM. In order to draw any valid conclusion, one must exclude the costs that ICM identifies as "shared," and remove the Commission-ordered 28.86 percent allocation of shared and common costs that is contained in the existing rates.

Q. WHAT ARE THE RESULTS OF THE ABOVE ADJUSTMENTS?

A. For the end-office switching (EOS) rate element, ICM produces a LRSIC of

$0.003715 per minute when the "Shared Costs Excluded" option is selected. Dividing the current premium EOS intrastate rate of $0.004865 per minute by 1.2886 removes the allocation of shared and common costs, produces a comparable LRSIC of $0.003775 per minute. Thus, after adjusting for the different treatment of the costs that ICM identifies as "shared," and setting aside the issue of the recovery of shared and common costs, ICM produces a LRSIC that is 1.6 percent *below* that produced by the earlier cost study. Again, it is clear that ICM cannot be rejected because it produces costs that are "too high."

Q. SHOULD ANY OF THE ABOVE ADJUSTMENTS TO THE CURRENT STUDY BE USED AS THE BASIS FOR PROPOSED RATES?

A. No. These adjustments have only been made to show that simple comparisons of existing rates with current costs cannot lead to meaningful conclusions about the validity of ICM. The adjustments also show that a comparison of ICM's LRSIC plus Common results with existing rates does not support the conclusion that ICM is flawed because it produces higher costs. In reality, the apparent increase in costs is due to three factors: (1) direct assignment of costs previously treated as shared; (2) differences in the composition of the network due to the sale of wire centers to Citizens; and (3) exclusion of circuit equipment from the loop costs underlying the existing rates.

B. ICM Models the Correct Network

Q. WHAT MAJOR CRITICISMS OF ICM DOES THIS PORTION OF YOUR REBUTTAL TESTIMONY ADDRESS?

A. Mssrs. Koch and Hendricks have claimed that even the 18kf copper-loop option modeled by ICM is unrealistic and that there are too many DLCs in the modeled network. Additionally, Mr. Koch is concerned about the type of DLCs modeled by ICM. (Koch Direct, pp. 14-15; and Hendricks Direct, pp. 8-10). My rebuttal testimony shows that ICM does not model too many DLCs and that it does not model the wrong DLCs.

With respect to Mr. Zolnierek's testimony, my rebuttal responds to his concerns about an alleged mismatch in ICM's approach to modeling loop and switching costs. My rebuttal also explains why two different networks are modeled for the UNE and switched access filings.

Finally, my testimony rebuts AT&T witness Boyles' claims that ICM models switches that are too large for the number of lines served, and that the GTD-5 is not a forward-looking switch. (Boyles Direct, pp. 10-11).

Q. DOES ICM MODEL TOO MANY DLCS IN ITS LOCAL LOOP NETWORK?

A. ICM does not model too many DLCs in its local loop network. While it is true that ICM models more DLCs than are present in Verizon's existing network in Illinois, the conclusion that the cost or number of DLCs is "excessive and imprudent" is unjustified. For one thing, given the 12kf (or 18kf) copper loop length restriction

316 modeled by ICM, there is no way to model fewer DLCs. More important, however,
317 is the difference between the dollar amount of circuit equipment investment modeled
318 by ICM and the reproduction cost of the existing network. As shown in Rebuttal
319 Attachment DGT-1, for the 12kf, 6 mbps option, ICM's modeled circuit equipment
320 investment is 14 to 16 percent *below* the reproduction cost of the existing circuit
321 equipment investment. For the 18kf option, the modeled investment is *more than 45*
322 *percent lower* than the reproduction costs. The contention that ICM models too
323 many DLCs or results in a network that is over-built with inflated costs simply does
324 not withstand scrutiny.
325
326 **Q. WHY DOES ICM RESTRICT THE COPPER LOOP LENGTH TO EITHER**
327 **12 OR 18 KILOFEET?**
328 A. The 12kf, 6 mbps option that the Company filed models a copper loop network that
329 will not impede the provision of advanced data services. As Verizon indicated in its
330 response to Staff data request JZ 3.3(b):
331
332 The network modeled by ICM was selected to have the capability of
333 providing advanced services requiring the transmission speed of the
334 most commonly deployed form of xDSL. The FCC's March 31, 1999
335 order in the Advanced Services docket (CC Docket No. 98-147),
336 adopts the term "xDSL" as the label for advanced service
337 technologies and identifies ADSL as the most commonly deployed of
338 these technologies. (Order at Par. 10, footnote 10). ADSL

subscribers generally experience downstream transmission speeds from 1.54 to 6.14 Mbps.

ICM includes the 18kf copper loop length restriction in order to be consistent with the Revised Resistance Design (RRD) standard used to lay out local loops on a global, or wire-center wide, basis. This standard is used to design local OSP in lieu of the more costly practice of designing loop facilities on an individual, loop-by-loop basis. The RRD standard requires that all copper loops greater than 18kf be loaded.[4] Hence, in order to model a network containing copper loops that do not impede some form of advanced data services – though not those requiring 6 mbps – ICM's second copper-loop length option restricts copper loops to 18kf.

Q. ARE THE WRONG DLCS MODELED IN ICM AS MR. KOCH CONTENDS?

A. No. Mr. Koch claims that ICM should have modeled traditional loop carriers rather than next generation DLCs (NGDLCs). In response to Verizon data request VZ-STAFF 1.04, Mr. Koch gave the SLC-96 as an example of the traditional loop carrier he is recommending. In the same data request response, and in his testimony, he defined a NGDLC in terms of its capability to support a hybrid fiber/copper network and to extend the reach of advanced services to all customers in the wire center. While Mr. Koch is correct that NGDLCs have the capability to accept an optical signal and run on fiber, he has extended the definition too far with respect to the capability to provide advanced services. What distinguishes a NGDLC from

[4] *Bellcore Notes on the Networks*, Issue 3, December, 1997; pp.7-68 and 7-69.

traditional DLCs is the ability to run on fiber and the ability to provide a GR303 interface with the switch. The SLC-96 that Mr. Koch cites as an example of a traditional DLC does not have this capability and is not a forward-looking technology.

Q. IS MR. HENDRICKS' CONTENTION THAT MANY OF ICM'S DLCS "WOULD SERVE ONLY 1, 2, OR A HANDFUL OF CUSTOMERS" VALID?

A. No, it is not. For the retained wire centers under the 12kf options, only 207 DLCs serve 5 or fewer customers, and under the 18kf option, there are only 67 DLCs with 5 or fewer customers. These DLCs represent only 4.7 and 3.3 percent of the DLCs modeled by ICM under each option. Moreover, the lines served by these DLCs represent only 0.09 and 0.03 percent of the lines in Verizon's Illinois network, respectively. Even under the 12kf options, less than 1 percent of the lines in ICM's modeled network are served by DLCs with 12 or fewer lines. Mr. Hendricks' contention that many of ICM's DLCs "would serve only 1, 2, or a handful of customers" simply isn't true. Likewise, Mr. Hendricks' concern about the impact of modeling the deployment of small DLCs in sparse population areas is unsupported: if the material and placement costs of the smallest DLC are set equal to zero, the TELRIC of the 2-wire loop drops by $1.23, or only 4.6 percent. This result is for the 12kf, 6 mbps option. For the 18kf option, the decrease is $0.37, or only 1.5 percent. Clearly, Mr. Hendricks is merely stating his unsupported opinion as fact.

Q. WILL VERIZON EVER DEPLOY THE LOCAL OSP NETWORK

MODELED BY ICM?

A. No, it will not.

Q. THEN WHY DOES ICM MODEL SUCH A NETWORK?

A. This network is modeled in order to comply, to the greatest extent possible, with the FCC's requirements for forward-looking economic cost studies. It is no secret that since the passing of the Telecommunications Act of 1996, what constitutes a proper forward-looking economic cost study has been debated before the FCC and numerous state regulatory commissions throughout the country, as well as in various courts. Unfortunately, the FCC's standards on this issue are both unclear and conflicting. For example, at paragraph 685 of the FCC's First Report and Order,[5] the FCC states:

> This benchmark of forward-looking cost and existing network design most closely represents the incremental costs that incumbents *actually expect to incur* in making network elements available to new entrants. Moreover, this approach encourages facilities-based competition to the extent that new entrants, by designing more efficient network configurations, are able to provide the service at a lower cost than the incumbent LEC. We, therefore, conclude that the forward-looking pricing methodology for interconnection and unbundled network elements should be based on costs that assume that wire centers will be

[5] *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, First Report and

> placed at the incumbent LEC's current wire center locations, but that the reconstructed local network will employ the most efficient technology for reasonably foreseeable capacity requirements. (*Emphasis added*).

Additionally, in its Universal Services Order,[6] the FCC held that

> [t]he loop design incorporated into a forward looking economic cost study or model should not impede the provision of advanced services.

Clearly, the FCC has set the costs that an ILEC expects to incur as the standard for forward-looking economic cost studies, and supports its approach by claiming this standard will encourage facilities-based competition by competitors that design more efficient network configurations. Yet, the FCC also requires that the modeled loop network not impede the provision of advanced services, even though the existing network does not meet this requirement. Further, the approach established by the FCC contemplates a reconstructed local network, implying economies of scope and scale that no incumbent will ever realize in the real world. (See Tucek Direct, pp. 22-23). In resolving this conflict in modeling the local loop network in its Synthesis Model, the FCC has opted for a totally hypothetical network. Specifically, the FCC's model places NGDLCs based on a combined size and copper loop-length

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Order, FCC No. 96-325, CC Docket Nos. 96-98 and 95-185, 11 F.C.C.R. 15499 (Aug. 8, 1996).

constraint, given the existing wire center locations. While Verizon prefers a cost model that is based more closely on the network as it exists in the real world, the FCC's requirements, and the current state of modeling technology, mean that ICM is the best model available to estimate Verizon's forward-looking costs in Illinois.

Q. HAS VERIZON FOLLOWED THE FCC'S LEAD IN MODELING SWITCHING COSTS?

A. No. The FCC models switching costs on a per-line basis and then arbitrarily partitions these costs between local access and usage. As I explain below in my discussion of Mr. Zolnierek's testimony, except for line termination, switching costs are usage-sensitive and need to be modeled as such. Verizon has chosen to model these costs correctly, using the best available modeling technology. While Mr. Zolnierek may view ICM's approaches to modeling the local loop and switching networks as inconsistent, they in fact represent the best available means of estimating Verizon's costs in Illinois.

Q. IS MR. ZOLNIEREK'S CLAIM THAT ICM USES TWO MODELED LOCAL LOOP NETWORKS CORRECT?

A. Yes. In order to estimate the costs of unbundled loops, ICM makes the assumption that all loops served by a DLC are terminated on a Central Office Terminal, or COT. As explained by Verizon witness Dye in his rebuttal testimony, the requirements for

[6] FCC's First Report and Order on Universal Service, CC Docket 96-45, FCC 97-157 (rel. May 8, 1997 ¶ 250.

unbundling a loop mean that it must be handed off at a voice-grade level. In ICM, loops served by a DLC are connected to the central office via fiber feeder at a DS-1 level, which can carry up to 24 voice transmissions on a single channel. In order to meet the unbundling requirements, ICM uses the COT to terminate the loops so that they can be handed off to the CLEC at a voice-grade level, sometimes called a "DS-0" level of service. For the switched access filing, ICM assumes that the fiber-fed DS-1's are terminated on the trunk side of the switch, because this is the network configuration that most closely resembles the real world situation under which switched access is provided. Even though the switched access filing corresponds to the "Retail" network, the modeled expenses under both runs exclude avoided retail costs. Also, the common cost allocator is based on the "Retail" configuration.

Q. IS MR. ZOLNIEREK'S CRITICISM OF THIS APPROACH VALID?

A. No, it is not. While it is true that the wholesale network results in a greater level of modeled investment than does the retail configuration, the increase is not significant. Rebuttal Attachment DGT-2 summarizes the differences in the modeled investment for the two affected accounts and for the network as a whole. For the two affected accounts (Digital Electronic Switching and Circuit Equipment), the increase in the modeled investment is less than 2.3 and 1.9 percent for the 12kf and 18kf runs, respectively. For both runs, the increase in *total* modeled investment is less than 0.5 percent.

Q. IS MR. BOYLES' CLAIM, AT PAGES 10-11 OF HIS DIRECT, THAT ICM

MODELS BASE UNITS AND REMOTE SWITCHES THAT ARE TOO LARGE FOR THE NUMBER OF LINES SERVED VALID?

A. No, it is not. While it is true, for example, that a DMS-100 can be equipped to serve more than 100,000 lines, neither in Verizon's real network nor in the modeled network are these switches equipped to serve the maximum possible number of lines. Mr. Boyles' argument is specious at best – it is equivalent to arguing that someone who only drives 40 miles per hour on city streets has bought too much car because it is capable of speeds in excess of 100 miles per hour. Verizon Data Request VZ-ATT 2.02 referenced Mr. Boyles' criticism that the selected switches were too large, and asked AT&T to identify which switches Mr. Boyles would select to model Verizon's forward-looking switching costs for each of the wire centers in Verizon's Illinois service territory. Mr. Boyles' response did not provide a specific switch type for each of the wire centers as requested, but it did offer a decision rule that would select 5ESS's, DMS-100's, DMS-10's and the corresponding remotes to model Verizon's costs. This response is in direct contradiction to Mr. Boyles' claim that the switching technologies Verizon has selected are too large for the given wire centers based on the maximum number of lines each switch can be equipped for. At best, Mr. Boyles' direct testimony shows that he simply does not understand the difference between the maximum number of lines a particular switch can be equipped for, and the number of lines that are actually equipped. At worst, it shows that he is trying to mislead this Commission.

Q. IS MR. BOYLES' CLAIM, AT PAGE 11 OF HIS DIRECT TESTIMONY,

THAT THE GTD-5 IS NOT A FORWARD-LOOKING SWITCH VALID?

A. No, it is not. While it is true that Verizon last purchased a GTD-5 base unit in Illinois in 1989, this does not mean the technology is not forward-looking. Lucent/AGCS continues to market and support the GTD-5, and Verizon continues to buy remotes. In fact, in April, 1997, BC TEL signed a $60 million volume purchase agreement with AGCS to purchase GTD-5 Class 5 digital switching equipment and IN products. In May, 2000, both the Michigan Public Service Commission and the Michigan staff concluded that the GTD-5 is a forward-looking switch and should be used to estimate Verizon's switching costs. (Order, Michigan Case No. U-11832, pp. 24 and 27).

C. Claims that Verizon's Cost Study is not Forward-Looking and Does Not Comply with the Commission's Rules are Incorrect

Q. PLEASE SUMMARIZE THE TESTIMONY CLAIMING THAT VERIZON'S COST STUDY IS NOT FORWARD-LOOKING AND DOES NOT COMPLY WITH THE COMMISSION'S RULES FOR COST STUDIES.

A. At page 16 of his direct testimony, Mr. Koch claims that Verizon's cost study is not forward-looking because it is not based on a projection of demand over any planning horizon, and is instead based on actual line counts. At pages 21 through 25, Mr. Zolnierek makes the broad claim that the Company's cost study does not comply with the Commission's rules because ICM assumes two different networks for the UNE and switched access filings, and because ICM does not include SS7 Gateways for ISP-bound traffic but does include the GTD-5.

Ms. Marshall is the only Staff witness to cite specific portions of the Commission's rules in support of her position. Specifically, she cites Part 791.20(c) and 791.80(f) to suggest that the Company's study is not forward-looking because it is based on historical costs. She concludes that because Verizon has not demonstrated that these historical costs are relevant to the study of forward-looking costs, the study is consequently not in compliance with Part 791.80(f). Ms. Marshall further cites Parts 791.40(c)(4) and 791.60(b) to suggest that the Company's study is not forward-looking because it relies on historical demand data and does not reflect any increase in demand. Lastly, Ms. Marshall states that in Docket 96-0486 "the Commission found that forecasted budget data should be used for TELRIC purposes" and offers her opinion that budgeted data should be used to perform a forward-looking study. (Marshall Direct, pp. 3-4).

Finally, Mr. Boyles takes the position that a model incorporating Verizon's engineering practices and operating characteristics is inconsistent "with the proper application of TELRIC methodology, which requires that the costs of an *efficient* carrier be modeled." He never specifically supports how or why Verizon engineering practices and operating characteristics are inefficient and therefore never establishes why this alleged inconsistency exists. Instead, he equates "efficient" with "forward-looking" and cites Part 791.20(c) on the Commission's Administrative rules. (Boyles Direct; pp. 5-6).

Q. DOES ICM MODEL THE NETWORK BASED ON FORECASTED LEVELS OF DEMAND?

A. No. ICM uses actual access line counts by wire center in order to be consistent with the use of 1999 ARMIS data as the starting point in the development of modeled expenses.

Q. DO THE COMMISSION'S ADMINISTRATIVE RULES REQUIRE THE USE OF FORECASTED DEMAND DATA?

A. No. Forecasted demand data are mentioned in the rules only with respect to the forward-looking cost of new services. Part 791.40(c)(4) states:

> The LRSIC study shall reflect the demand for the entire service that is affected by the business or regulatory decision at hand. If the LRSIC study is for a new service, the study shall include all demand forecasts used in the computations.

Note that this rule does not even state that forecasted demand data are required; it merely assumes that forecasted data will be used because the service is new. Further, Part 791.60(b) explicitly allows the use of "demand figures and/or forecast(s)" in LRSIC computations:

> Demand Information. The carrier shall provide the demand figures and/or forecast(s) used in the LRSIC computations and an

> explanation detailing the explicit and implicit assumptions and methods used to derive the figures and/or forecast(s). Demand forecasts for new services shall reflect total demand for the service, averaged over the projected revenue producing life of the service.

Again, "forecasted demand data" is mentioned only in connection with new services and, as with the earlier rule, it is only presumed that forecasted data will be used. ICM's use of actual demand data for the entire network is consistent with the Commission's rules concerning forward-looking cost studies. Although Mr. Koch may not deem the Company's study forward-looking because "Verizon did not attempt in any way to project demand" (Koch Direct, p. 16), the Commission's rules indicate otherwise.

Q. IS MR. ZOLNIEREK'S BROAD CLAIM THAT ICM DOES NOT COMPLY WITH THE COMMISSION'S RULES SUPPORTED BY HIS TESTIMONY?

A. No. He bases this claim on his concern over the two local OSP networks modeled by ICM discussed above. As I explained previously, ICM's modeled wholesale network configuration reflects the requirement that unbundled loops be delivered to a CLEC at a voice-grade level. The Commission's rules say nothing about the specific networking assumptions underlying a cost study – they only state that the costs be "calculated as if the service were being provided for the first time and shall reflect planned adjustments in the firm's plant and equipment" and that they be based on the least-cost technology available whose cost can be reasonably estimated "based on

available data." (Part 791.20(c)) Further, Mr. Zolnierek's suggestion that ICM should reflect the use of an SS7 Gateway when the use of such technology is not part of Verizon's network plans is contrary to the Commission's rules.

Q. DOES ICM COMPLY WITH THE SECTIONS OF THE COMMISSION'S RULES CITED BY MS. MARSHALL?

A. Yes. With respect to Part 791.20(c) in particular, ICM calculates costs as if the service were being provided for the first time. The model reflects the forward-looking switches and the existing host/remote relationships because there are no planned adjustments to these characteristics of Verizon's Illinois network. (As explained above, the local loop network is admittedly hypothetical because of the FCC's TELRIC requirements and because of the current state of modeling technology). ICM's modeled network investment is not based on the historical prices paid for plant and equipment, but is instead based on current prices and costs that were reasonably estimated based on the available data.

With respect to Part 791.80(f), it is true that the operating expenses and other costs modeled by ICM are based on 1999 ARMIS data. However, as I explain below, the 1999 ARMIS data are only a starting point and have been adjusted to make them forward-looking. They are relevant to the study of forward-looking costs in this proceeding because what is being estimated is the forward-looking cost of the *entire* network, not just an individual service. Consequently, actual operating expenses for the *entire* company are the best starting point for ICM's modeled operating expenses.

Q. WHAT FORWARD-LOOKING ADJUSTMENTS HAVE BEEN MADE TO THE 1999 ARMIS DATA AND TO ICM?

A. As shown in the supporting documentation,[7] the 1999 ARMIS operating expenses were normalized for two items. The adjustment for account 672860 reflects the removal of a credit for the net settlement gains and curtailment losses on pensions, other post employee benefits, and supplemental employee retirement benefits. The normalization adjustment for account 6212 reflects removal of out-of-period expense true-ups dealing with Local Number Portability (LNP) costs related to 1997 and 1998 that were recorded in 1999. A related adjustment to account 2212 (Digital Electronic Switching) has also been made to remove the 1997 and 1998 out-of-period true-ups relating to the LNP investment costs.[8]

In addition to these normalization entries, the expense inputs have been made forward-looking by eliminating the following asset and expense accounts:

(1) 2211 and 6211 (Analog Electronic Switching);

(2) 2215 and 6215 (Electromechanical Switching); and

(3) 2431 and 6431 (Aerial Wire).

Also, the costs modeled by ICM reflect the carrying costs of the 21xx accounts I listed earlier in my testimony. Instead of basing these costs on the embedded plant

[7] See Attachment D.2 in the file "Section 3 PDF".

balances, they were adjusted to a reproduction cost basis using the composite C.A. Turner indexes shown in Rebuttal Attachment DGT-1. Likewise, and as explained below, the denominators of the expense-to-investment ratios used to model operating expenses are based on calibrated reproduction costs rather than on historical book value.

As acknowledged by Ms. Marshall at page 9 of her direct testimony, ICM's operating expenses have been reduced to reflect estimated savings from the merger between GTE and Bell Atlantic. This adjustment represents 50 percent of the merger savings allocated to Illinois and has reduced the ARMIS operating expenses used by ICM by 3.0 percent.

Finally, ICM's results have been made forward-looking through the modeling of network investment on the basis of current prices, rather than embedded historical costs.

Q. DID THE COMMISSION REQUIRE THAT BUDGETED DATA BE USED FOR FORWARD-LOOKING COSTS IN DOCKET 96-0486?

A. No. The Commission only decided that it was permissible for Ameritech to use budgeted data. There was no ruling that use of such data was required for Ameritech or for any other company, including Verizon.

[8] See Attachment A in the file "Section 3.PDF".

Q. EVEN THOUGH THERE IS NO REQUIREMENT TO DO SO, WHY DIDN'T VERIZON USE BUDGETED DATA?

A. Verizon does not budget at the level of detail required to develop the expense inputs required for ICM. Only 38 percent of the operating expenses are directly assigned to ICM's network cost pools based on just the account number. The assignment of the remaining expenses are developed utilizing actual accounting detail at a 6-digit account level by work center. Additionally, certain adjustments are made to the expenses that cannot be developed from the budgeted data. For example, because ICM is used to estimate recurring costs only, expenses related to service-order activity must be removed. This not only requires data at a 6-digit account level, it also requires accounting detail by the charge codes that Verizon's Zone Technicians use to record time worked on service orders. This level of detail goes below the work center level and is not budgeted.

Q. WHAT LEVEL OF DETAIL IS CONTAINED IN VERIZON'S BUDGET?

A. Verizon budgets at a 4-digit account level, by work center. Because this level of detail is budgeted only one-year out, it would have been impossible to use budget data for 2003 as Ms. Marshall recommends, even if this budgeted level of detail was sufficient. Moreover, the 2001 budget was not finalized until December, 2000, the month the Company was required to file its study. Due to the time needed to prepare ICM's expense inputs and the rest of the Company's filing, it would have only been possible to use budgeted data for 2000. Consequently, by starting with the 1999 ARMIS data and making the forward-looking adjustments I listed above, ICM's

expense inputs were reasonably estimated using available data as specified in Part 791.20(c) of the Commission's administrative rules.

Q. ARE THERE ANY OTHER REASONS WHY IT IS NOT POSSIBLE TO USE BUDGETED DATA?

A. Yes. As explained above, the carrying costs of the 21xx accounts, restated on a reproduction cost basis, are included in the per-unit UNEs and switched access costs filed by the Company. Even if all of the obstacles noted above were miraculously swept away, it would not have been possible to estimate the reproduction cost of these assets because the requisite C. A. Turner indices for years beyond 1999 did not exist at the time of the filing. Again, ICM's expense inputs were reasonably estimated using available data.

Q. WHY DID VERIZON CHOOSE ARMIS DATA FROM 1999 INSTEAD OF 2000?

A. There are two reasons. First, as was just noted, the Company was required to file its study no later than December, 2000. The 2000 ARMIS data was not filed with the FCC until March 30, 2001. After the data are filed with the FCC, it takes 90 to 120 days to prepare the expenses inputs for ICM. So, it was literally impossible to use 2000 ARMIS data. Note that even though 2000 demand data would have been available earlier than the ARMIS data, it still would not have been available in time for the required filing date. In any event, use of 2000 demand data and 1999 ARMIS data would have resulted in a mismatch between the operating expenses and the

demand levels that generated them.

The second reason is related to the sale of the wire centers to Citizens noted earlier. If 2000 ARMIS data had been used, the operating expenses and plant account balances would have reflected two differently sized companies – a much larger company for 11months, and the existing company for only one month. As explained in my testimony and in Staff data request JZ 1.5, the network modeled by ICM includes the sold wire centers in order to preserve the relationship between the demand data and the ARMIS data, but excludes them in computing the statewide average costs. The latest year available for which the ARMIS data matched the demand data was 1999.

Q. IS MR. BOYLES' DISCUSSION, AT PAGE 6 OF HIS DIRECT TESTIMONY, RELATING TO EFFICIENCY AND PART 791.20(C) OF THE COMMISSION'S ADMINISTRATIVE RULES, RELEVANT?

A. No, it is not. For one thing, as I explained above, Verizon's cost study complies with Part 791.20(c) of the rules. Mr. Boyles seems to be suggesting that ICM somehow includes historical or embedded costs in its output. Again, as I explained above, the 1999 ARMIS data have been adjusted to make them forward-looking. Further, the adjusted operating expenses are used as the numerator in expense-to-investment ratios that are applied to the forward-looking investments modeled by ICM on a per-unit basis. There are no historical or embedded costs recovered through these ratios. While he claims that inefficiencies are found in the switching technologies modeled

by ICM, I have shown above that this is not the case. In particular, Mr. Boyles' response to Verizon Data Request VZ-ATT 2.02 shows that he now agrees that at least the DMS-100, DMS-10 and the 5ESS are appropriate switches for Verizon's network.

III. THE OTHER STAFF CRITICISMS ARE UNFOUNDED

A. Mr. Koch's Testimony

Q. WHAT PORTIONS OF MR. KOCH'S DIRECT TESTIMONY DOES THIS SECTION OF YOUR REBUTTAL ADDRESS?

A. This portion of my rebuttal responds to Mr. Koch's comments dealing with advanced services at pages 11 through 15 of his direct testimony. Additionally, at pages 15 through 18 of his direct testimony, Mr. Koch suggests that 2000 census data should have been used to develop ICM's customer location data. I respond to his comments on this topic in this portion of my rebuttal testimony.

Q. CAN THE NETWORK MODELED BY ICM PROVIDE ADVANCED SERVICES, ALSO KNOWN AS xDSL?

A. Yes, but not without additional equipment. There seems to be some confusion regarding what my testimony and the supporting documentation says about the modeled network and advanced services. It was never Verizon's intent to model a network that was completely equipped to provide advanced services. Rather, as

stated in Verizon's response to Staff data request JZ 3.3(a), my testimony on this topic refers to

> …. the local loop facility modeled by ICM. Specifically, the copper loop portion of this facility in the modeled network is capable of transmission speeds of 6.14 mpbs if that signal speed is applied. However, it must be noted that UNE costs in the ICM do not include the cost of the equipment required to generate and apply a signal of that speed to the loop. Additionally, loops falling in the grids (no more than 2 percent of the total grids) that do not meet the 12-kilofoot copper loop length restriction will not have this capability.

The local loop network modeled by ICM accomplishes the objective of not impeding advanced services through its length restriction on the copper portion of the loop and through its technology choice for the DLCs. The shelves, line cards, and any other equipment needed to provide xDSL are not included in the model because these costs are incremental to xDSL, not to unbundled loops.

Q. WHY DID VERIZON FILE A COST STUDY BASED ON A NETWORK CONSISTENT WITH 6 MBPS TRANSMISION SPEEDS?

A. As I explained above, and as was explained in the response to Staff Data Request JZ 3.3(b), Verizon modeled a network with the capability of providing the transmission speed associated with the most common form of advanced services, ADSL. Mr.

Koch is correct that the Public Utilities Act defines advanced services in terms of transmission speeds in *excess* of 200 kilobits per second (kbps). Both of ICM's 12kf options satisfy this requirement, as does the 18kf option. As I explained above, copper loops longer than 18 kilofeet are loaded under the RRD standard, which means that they would not be able to provide the minimum 200 kbps transmission speed required by the Public Utilities Act.

Q. SHOULD ICM BE REJECTED BECAUSE THE COMPANY FILED COSTS USING THE 12 KF, 6 MBPS OPTION?

A. No, this is not a reason to reject ICM. ICM offers a choice in the transmission speed supported by the modeled network. The 18kf option models a network that will not impede the minimum transmission speed specified by the Public Utilities Act. However, the performance capability of the advanced services declines along with the transmission speed of the copper loop. The choice is not to accept or reject ICM on the basis of the option selected in the Company's filing. The choice is between selecting a modeled network that meets the transmission speed specified by both the FCC's definition of advanced services and the Public Utilities Act, or a network that only meets the requirements of the definition in the Public Utilities Act.

Q. IS MR. KOCH'S SUGGESTION THAT VERIZON SHOULD HAVE USED 2000 CENSUS DATA TO MODEL CUSTOMER LOCATIONS FEASIBLE?

A. No, it is not. TNS Telecoms, the successor company to PNR Associates, no longer produces or markets the business and residential subscriber data by census block that

Verizon used as part of its modeling of customer location. Even if they did, all of the 2000 census data required to produce this information has not yet been released, and once it is released, it would take approximately three months to complete such a project just for Illinois. In addition to the time required to produce the data provided by PNR, an additional 60 days is needed to map this information to the grids used by ICM, and to true up the line counts to actual ARMIS totals for each wire center. Consequently, it is not possible for Verizon to have taken the course of action suggested by Mr. Koch because the required data were not, and still are not, available.

B. Mr. Zolnierek's Testimony

Q. WHAT PORTIONS OF MR. ZOLNIEREK'S DIRECT TESTIMONY DOES THIS SECTION OF YOUR REBUTTAL ADDRESS?

A. At page 24 of his direct testimony Mr. Zolnierek relies on differences in the modeled and actual amount of metallic and fiber sheath feet in Verizon's network. At page 26, he recommends that ICM be accepted only if it is modified to produce a single network. At pages 27 through 30, he maintains that ICM does not model switching costs in a manner consistent with how they are incurred. At page 30, he discusses Verizon's response to Staff data request JZ 4.4. My rebuttal testimony responds to all of the above portions of Mr. Zolnierek's direct testimony.

Q. SHOULD MR. ZOLNIEREK'S COMPARISON OF THE MODELED AND

ACTUAL AMOUNT OF FIBER AND METALLIC CABLE BE A SOURCE OF CONCERN FOR THIS COMMISSION?

A. No. While his analysis is accurate as far as it goes, it leaves out one key feature: namely, that the combined total of fiber and copper sheath feet modeled by ICM is 1.2 percent less than the actual amount in the network. This illustrates the validity of the road feet data used by ICM to constrain the total amount of copper cable modeled in each wire center. The difference in the mix between copper and fiber cable should neither be surprising nor a cause for concern, since it only reflects the model's use of fiber-fed DLCs and the decrease in multiple sheaths that results from modeling the network as if it were built all at once. Fiber is the forward-looking technology used to carry traffic from a DLC to the central office, and its use by ICM is consistent with the Commission's Administrative Rules.

Q. SHOULD THE COMMISSION ACCEPT MR. ZOLNIEREK'S RECOMMENDATION THAT ICM BE ACCEPTED ONLY IF IT IS MODIFIED TO PRODUCE A SINGLE NETWORK?

A. No. As I explained above, the "Wholesale" local loop network assumes that all loops served by a DLC are terminated on a COT in order that they be handed off to the CLEC at a voice grade level of service. By modeling all such loops in this manner, ICM understates the cost of providing both unbundled and retail loops out of a single network. The reason for this is that it is reasonable to expect the mix of end-users served by Verizon and by CLECs to fluctuate through time. Because Verizon must build and maintain a network that serves both its own and the CLECs' end-user

customers, there will be fewer end-users terminated on COTs than the model assumes. Likewise, there will be fewer end-users terminated on the trunk side of the switch than the model assumes in the retail configuration. Consequently, the per-line cost of a COT or trunk-side termination in a single network will be higher than what either modeled network produces.

Q. IS MR. ZOLNIEREK CORRECT WHEN HE MAINTAINS THAT VERIZON HAS NOT MODELED SWITCHING COSTS IN A MANNER CONSISTENT WITH HOW THEY ARE INCURRED?

A. No, he is not. It is true that the results of the Nortel contract and the Lucent and AGCS quotes are expressed on a per-line basis. However, the application of the contract and the development of the quotes are based not only on the total number of equipped lines, but also on such information as the number of trunks, usage per line, and usage per trunk. Mr. Zolnierek's contention not only flies in the face of what determines the cost of a switch, it is also in direct opposition to the findings of this Commission. For example in ICC Docket 86-0346, the Commission found:

> Flat rate pricing requires a single rate for all customers of a specific class regardless of the amount of service used. This pricing practice ignores the fact that usage of the system results in positive costs.

Q. IS MR. ZOLNIEREK CORRECT WHEN HE MAINTAINS THAT WHEN A CLEC PURCHASES A PORT FOR A PARTICULAR END-USER, THE CLEC

SHOULD BE CHARGED ON A PER-LINE BASIS FOR BOTH THE PORT AND ALL OF THE ASSOCIATED USAGE?

A. No. Mr. Zolnierek's argument is based on the fallacy that all end-users exhibit more or less the same usage characteristics. That they do not is one reason why this Commission has long supported a measured service rate structure for local service. If Mr. Zolnierek's argument had any merit whatsoever, it would follow that local service should be charged 0n a flat-rate, per-line basis only, since each end-user purchases all of the switching associated with his own port just as the CLEC purchases all of the usage associated the port corresponding to a given end-user.

Q. IS MR. ZOLNIEREK CORRECT WHEN HE MAINTAINS THAT SCIS ESTIMATES A SWITCH COST FOR THE GLCNILXEDS0 WIRE CENTER THAT IS 57 PERCENT GREATER THAN THE AMOUNT PAID FOR THIS SWITCH IN 1998?

A. No. This CLLI corresponds to the wire center in Golconda, Illinois. In order to make sure the Commission has a clear understanding of how much was actually paid for this switch and of how much investment SCIS models, I have created confidential Rebuttal Attachment DGT-3. This rebuttal attachment is based on Verizon's response to Staff data Request JZ 4.4. All of the information contained in this attachment was available to Mr. Zolnierek, or could have been calculated by him.

Mr. Zolnierek has based his calculation on an actual amount paid that *excludes* the RTU fees that Verizon paid the vendor under a national contract. This contract

884 provides for a standard set of end-user features by switch type as well as upgrades to
885 the operating system over the life of the contract. These RTU fees are above and
886 beyond those included as part of the switch purchase. In calculating the amount
887 modeled by SCIS, Mr. Zolnierek *included* the RTU fees purchased under the national
888 contract. In other words, Mr. Zolnierek's 57 percent is based on the actual amount in
889 cell C17, and a modeled investment amount in cell E24. The RTU fees that fall
890 under the national contract are actually paid by Verizon to the vendor and should
891 rightfully be included in both amounts. Using the amounts in cells C19 and E24, it is
892 seen that the increase Mr. Zolnierek should have calculated is 34 percent.
893
894 Staff data request JZ 4.4 indicates that the information was requested for Golconda
895 as a "vehicle to explain the SCIS and CostMod estimation approaches." Since the
896 request asks nothing about specific assumptions made by SCIS, but instead only
897 relies on the results produced, it is reasonable to investigate the source of the 34
898 percent variance. Although Verizon's response to the data request provided an
899 explanation of the source of the variance, Mr. Zolnierek did not include this
900 information in his testimony. As shown at rows 33 through 46 of Rebuttal
901 Attachment DGT-3, the variance is due to use of a discount factor in SCIS that is
902 different than what would be realized for a switch configured like Golconda. I
903 address this issue below in my rebuttal of Mr. Boyles' testimony. I show there that
904 Verizon's use of an average discount across all switch sizes for a given switching
905 technology produces lower cost results than if the discounts that varied by line size
906 were used. Consequently, Mr. Zolnierek's concern that SCIS is somehow inflating

switch costs is unwarranted.

C. Ms. Marshall's Testimony

Q. WHAT PORTIONS OF MS. MARSHALL'S DIRECT TESTIMONY DOES THIS SECTION OF YOUR REBUTTAL ADDRESS?

A. At pages 5 and 6 of her direct testimony, Ms. Marshall discusses the proper treatment of costs associated with sporting events, skyboxes, etc. and with costs related to non-product-related corporate image advertising. At pages 7 through 11, Ms. Marshall discusses her concerns with the identification of Verizon's shared and common costs and with the calculation of Verizon's common cost allocator. My rebuttal testimony addresses these portions of her testimony, along with the following issues: (1) the reasonableness of the overall level of Verizon's shared and common costs; (2) Ms. Marshall's recommendation that all of the merger savings and the process re-engineering savings be reflected in the model; (3) Ms. Marshall's contention that an increase in demand will result in lower unit costs because shared and common costs are spread over a larger group of customers.

Q. IS MS. MARSHALL CORRECT WHEN SHE SAYS THAT IT IS UNLIKELY THAT COSTS RELATED TO THE COSTS OF SPORTING EVENTS ARE INCLUDED IN ACCOUNT 6612?

A. No, she is not. As I explained to Ms. Marshall in the discussion she reports, although Verizon recorded these costs in this account, Verizon was unable to identify the

dollar amounts associated with these activities included in this account. At Ms. Marshall's request, and in lieu of eliminating the entire account, I developed an adjustment to ICM's expense inputs to eliminate all but the labor portion of this account. The result of this adjustment is the special run described by Ms. Marshall in her testimony.

Q. IS MS. MARSHALL CORRECT IN HER CONCLUSION THAT THIS SPECIAL RUN DOES NOT PROVIDE A REASONABLE ESTIMATE OF THESE COSTS?

A. No, she is not. Her conclusion is based on the belief that such costs are recorded in account 6722 as part of expenses related to "performing public relations and non-product-related corporate image advertising activities." It is true that costs related to corporate image advertising would be recorded in this account. Under Verizon's accounting system, these costs would appear in the 6-digit account numbered 672258, Corporate Advertising. For Illinois, no regulated expenses were booked to this account in 1999. Consequently, no further adjustment to ICM beyond the special run is required to address this issue.

Q. HOW DOES ICM CALCULATE THE AMOUNT OF "SHARED" EXPENSES INCLUDED IN THE TELRIC OR LRSIC OF EACH SERVICE?

A. When the "Shared Costs Included" user option is selected, ICM includes these costs in the numerator of the expense-to-investment ratio for each network cost pool.[9] The

[9] Only the shared costs assigned to the network cost pools are part of the expense-to-investment ratios. The

shared costs are assigned to each cost pool based on an analysis of the 1999 ARMIS data at a 6-digit account level by work center. This is the same process used to assign the expense portion of direct costs to the same cost pools. The development of the expense-to-investment ratios for the wholesale filing is shown in the supporting documentation in Attachment P, found in the file "Section 7.PDF". Attachment P.1, found in the same file, shows the development of the ratios with "shared" costs excluded. The corresponding attachments for the retail filing are found in the file "Section 8.PDF".

Q. WHAT MAKES UP THE COSTS THAT ICM LABELS AS "SHARED'' AND HOW ARE THEY ASSIGNED TO ICM'S COST POOLS?

A. As noted in the first part of my testimony, one portion of these costs is related to the carrying costs and operating expenses associated with general support assets such as furniture, general purpose computers, and motor vehicles. The assignment of the 61xx accounts associated with these assets is based on an analysis of accounting information at a 6-digit level of detail, by work group. For example, if a certain dollar amount of motor vehicle expense is recorded for a work group associated with poles, then that dollar amount is assigned to the pole cost pool. This is the same analysis used to assign operating expenses recorded in the other accounts to the cost pools. The assignments of the 21xx plant accounts follow the assignment of the corresponding 61xx expense accounts.

network cost pools are associated with the physical assets that make up the network: Aerial Copper Cable, Aerial Fiber, Buried Copper Cable, Buried Fiber, Underground Copper Cable, Underground Fiber, Poles, Conduit, Transmission Facilities, and Switching.

Another portion of these "shared" costs is made up of expenses recorded in the following three 65xx accounts:

(1) Power Expense (6531);

(2) Plant Operations Administration Expense (6534);

(3) Engineering Expense (6535);

Account 6531 records the cost of electrical power used to operate the telecommunications network. Based on an analysis of power usage in a digital central office, 79.4 percent of these costs are assigned to the Switching cost pool and 18.8 percent are assigned to the Transmission cost pool. The remainder, less than two percent, is assigned to the other network cost pools. Account 6534 records costs incurred in the general administration of plant operations. Account 6535 records costs incurred in the general engineering of the telecommunications plant which are not directly chargeable to a project. The bulk of these two accounts (98 percent) is assigned to the network cost pools based largely on the distribution of the expenses that are directly assigned. Of this amount, 43 percent is assigned to the six cable cost pools and to the pole and conduit cost pools; 36 percent is assigned to switching and the remainder is assigned to transmission.

The final portion of the "shared" costs are expenses recorded in the following three 67xx accounts:

(1) Human Resources (6723);

(2) Information Management (6724); and

(3) Other General and Administrative (6728).

Ninety-eight percent of these accounts are treated as common costs by ICM, with the remainder assigned directly or based on the distribution of the expenses that are directly assigned.

Q. ARE THESE SHARED COSTS AS YOU UNDERSTAND THE TERM?

A. Yes, but only in a very narrow sense. These costs represent resources that are used to provide two or more services, so they are shared. But, by the same logic, a pole or a cable sheath is a shared cost since these resources are used to provide unbundled loops, switched and special access lines, interoffice transport, etc. It is clear that by modeling the physical network, we can reasonably determine how much of a pole, for example, is needed on average to provide an unbundled 2-wire loop. I don't believe that any party can credibly argue that the cost of a pole not be included in the direct costs of the various services that use poles. So what really is at issue here is whether ICM's assignment of the costs it labels as "shared" is reasonable. I believe it is, because it is based on the same process that assigns other operating expenses to the network cost pools and, ultimately, to the per-unit TELRICs and LRSICs.

Q. IS IT REASONABLE TO REJECT ICM JUST BECAUSE THERE IS

DISAGREEMENT WITH THE ASSIGNMENT OF THESE COSTS?

A. No. As Ms. Marshall has demonstrated in her testimony, ICM has the flexibility to include or exclude these costs from the TELRIC and LRSIC estimates. I note, however, that disagreeing with their assignment is different than disallowing them altogether. If they are excluded from the per-unit costs, then some mechanism for their recovery must be developed.

Q. WHY IS THERE VARIATION IN THE AMOUNT OF THE MARKUPS CALCULATED BY MS. MARSHALL IN SCHEDULES 2 AND 3 OF HER DIRECT TESTIMONY?

A. This variation is due to the fact that different services use different amounts and proportions of the plant associated with different cost pools, and to the fact that each cost pool is assigned a different proportion of the costs ICM labels as "shared," based on the analysis of the ARMIS data at a 6-digit account level by work center. This variation is to be expected and only looks questionable if one assumes these costs should be spread evenly across the entire network. However, such an assumption would be incorrect. For example, it makes sense that power expenses (account 6531) be assigned largely to switching and transmission, since these are the network components that utilize most of the power.

Q. DO YOU AGREE WITH MS. MARSHALL'S RECOMMENDATION THAT THE FIXED ALLOCATOR WILL HAVE TO BE RECALCULATED AFTER ALL OTHER ADJUSTMENTS TO ICM HAVE BEEN FINALIZED?

A. Yes, I do. Examples of changes that would require such a recalculation include anything that would affect the direct costs, whether it be through the level of modeled investment or through the amount of operating expenses. Similarly, reclassification of costs from those included in the denominator of the allocator to those included in the numerator would also require a recalculation. An example of this, dealing with the alternative treatment of the costs ICM labels as "shared," is shown in Rebuttal Attachment DGT-4. On page one of this attachment, I have shown the effect of excluding these costs from the TELRICs and LRSICs. The attachment shows both the effect on the allocator, and on certain LRSIC plus Common cost results. The allocator increases to 26.89 percent and, in general, more of the costs in question are assigned to the loop and less to the switch.

Q. IS THERE ANY OTHER REASON WHY THE FIXED ALLOCATOR SHOULD BE RECALCULATED?

A. Yes, there is. In developing the expense-to-investment ratios used to model operating expenses, ICM adjusts the reproduction cost of the existing network so that it equals the modeled investment for three broad categories of investment: switching, transmission and outside plant (OSP). (For the wholesale filing, see Attachment J.4 in file "SECTION 7.PDF" in the supporting documentation. See the corresponding attachment in the file "SECTION 8.PDF" for the retail network configuration.) The result of this calibration operation is that the expense-to-investment ratios do not recover all of the costs that enter into their numerators. The easiest way to adjust for this calibration shortfall is to modify the fixed allocator by

removing the shortfall from the allocator's denominator and adding it to the numerator. This is done on page two of Rebuttal Attachment DGT-4. Page three of this attachment shows the calculation of the calibration shortfall. Note that the amount of the shortfall varies, depending on whether the costs ICM labels as "shared" are included or excluded from the per-unit TELRICS and LRSICs.

Q. IS IT TRUE THAT ICM'S OVERALL LEVEL OF SHARED COSTS IS TOO HIGH?

A. No, it is not. As I demonstrated in Rebuttal Attachment DGT-4, excluding the shared costs from the TELRICs and LRSICs calculated by ICM and including them instead in the fixed allocator, produces a combined allocator for shared and common that is below the 28.86 percent threshold advocated by Ms. Marshall. Based on her own recommended standard, the overall level of shared costs determined by ICM is not too high.

Q. DO YOU AGREE WITH MS. MARSHALL'S RECOMMENDATION THAT ALL OF THE SAVINGS FROM THE MERGER BETWEEN GTE AND BELL ATLANTIC MUST BE REFLECTED IN THE COST STUDY?

A. No, I do not. The Order approving the merger between the two companies specifically states that "We further conclude that 50% of the net merger savings allocable to the merged companies' jurisdictional operations should be allocated to Illinois consumers. " (Order, Docket No. 98-0866; Section V.G.5) The expense inputs to ICM reflect a reduction equal to 50 percent of the merger-related savings,

in keeping with the order approving the merger.

Q. DO YOU AGREE WITH MS. MARSHALL'S RECOMMENDATION THAT ALL OF THE COST REDUCTIONS RELATED TO PROCESS RE-ENGINEERING BE FULLY REFLECTED IN VERIZON'S COST STUDY?

A. No, I do not. As explained in Docket 98-0866, these cost reductions stem from measures taken before the merger announcement. As such, they cannot be properly characterized as merger savings. In any event, GTE's process reengineering effort was a three-year program that began in 1994 and ended in 1997, so that any cost reductions resulting from that effort are fully reflected in the 1999 ARMIS data that are the starting point for ICM's expense inputs. Consequently, no adjustment beyond the merger-savings adjustment discussed above is needed to account for these cost savings.

Q. DO YOU AGREE WITH MS. MARSHALL'S CONTENTION THAT ANY INCREASE IN DEMAND WILL MEAN THAT VERIZON'S SHARED AND COMMON COSTS WILL BE SPREAD OVER A LARGER POOL OF CUSTOMERS, RESULTING IN LOWER UNIT COSTS?

A. No, I do not. Her argument rests on the assumptions that shared and common costs are stagnant, that other costs will not increase, and that the per-unit incremental costs arising from the increased demand are less than the per-unit costs estimated by ICM. These assumptions are not supported by Ms. Marshall, and there is no reason to believe that they are true. For example, account 6275, Legal Expenses, is entirely

assigned to the Common Cost pool in ICM. It is possible for these expenses to grow, say because of the passage of sweeping landmark legislation, even if the number of customers declines. Additionally, for the reasons I outlined in my direct testimony, the costs produced by ICM should be viewed as a lower bound since the model assumes economies of scope and scale that will not be realized in the real world. Accordingly, an increase in the number of customers may well be associated with additional costs that exceed those produced by the model.

Q. ARE THE SCHEDULES THAT ACCOMPANY MS. MARSHALL'S TESTIMONY CONSISTENT WITH THE COMPANY'S FILING?

A. They are, with one exception. The rightmost column of Ms. Marshall's Schedule 3 appears to present a composite shared and common allocator based on the LRSICs with shared costs excluded. A review of this column indicates that it was calculated by adding Verizon's common costs as a percent of total regulated revenues to the shared percentages shown in the third column of the schedule. The correct calculation should have multiplied the 12.39 percent common allocator sponsored by Mr. Dye times the LRSIC with shared costs included, divided this product by the LRSIC with shared costs excluded, and added the resulting percentage to the shared percentages calculated by Ms. Marshall. For example, the total shared and common percentage for "VG 2 Wire" would be calculated as follows:

(a) $27.24 x 12.39% = $ 3.38

(b) $ 3.38 / $23.77 = 14.20%

(c) 14.20% + 14.60% = 28.80%

The variances in this column are not important with respect to the discussion of ICM's results contained in Ms. Marshall's direct testimony, since the calculations still illustrate the point she is trying to make. In my opinion, there is no need to ask Ms. Marshall to reissue this schedule so long as all parties recognize that the total shared and common allocator reported in the schedule is not exactly consistent with the Company's filing.

D. Ms. Buckley's Testimony

Q. WHAT PORTIONS OF MS. BUCKLEY'S DIRECT TESTIMONY DOES THIS SECTION OF YOUR REBUTTAL ADDRESS?

A. This section of my rebuttal testimony addresses Ms. Buckley's broad charge that ICM is complicated, difficult to use, and is not flexible. My rebuttal also clarifies certain statements made by Ms. Buckley concerning ICM versions 4.2 and 4.2a at page 3 of her testimony.

Q. IS MS. BUCKLEY CORRECT WHEN SHE SAYS THAT ICM IS COMPLICATED?

A. Yes, but this is not a model flaw. ICM is complicated because it models a complex network. As explained in my direct testimony, and in the model documentation, ICM models Verizon's telecommunications network from the ground up. This

means that it models the amount of distribution cable, the number of poles and pedestals, the number of cross-connect boxes and DLCs, and the amount of copper and fiber feeder for every wire center in Verizon's network. It also models the switching cost for line terminations, usage and features for every wire center, as well as the facilities required to provide interoffice transport. Including the exchanges sold to Citizens, this covers a total of 970,673 access lines in 524 wire centers.

Q. SHOULD ANY PARTY BE SURPISED THAT ICM IS A COMPLICATED MODEL?

A. No. Since the initial round of arbitration hearings following the passage of the Telecommunications Act of 1996, various parties in numerous state proceedings have developed and advocated a series of increasingly complex models. The increasing complexity has stemmed not only from competition among the parties, but also from the increasing demands made upon the models. For example, the requirements to deaverage costs geographically or to unbundle elements at the subloop level have placed demands on the models that could not be adequately met in their earlier stages.

Q. IS MS. BUCKLEY CORRECT WHEN SHE SAYS THAT ICM IS DIFFICULT TO USE?

A. No, she is not. ICM is very easy to use. The user interacts with the model via a graphical interface that is very similar to Microsoft Windows, and many input changes can be made simply by entering a value or making a selection from the run

time options screens. An example of such a screen is shown in Rebuttal Attachment DGT-5. This is the run time options screen for the outside plant general settings. For example, if a user wanted to change the average spacing between poles, he would simply place his cursor in the window alongside the "Pole Spacing" field and enter the desired value. The choices for the copper loop length options are located at the bottom of the screen. Selecting the 18kf option is as easy as clicking the radio button to the left of the description. The file tree at the left of the screen allows the user to navigate easily to other areas of ICM to make changes to other run time options screens, to view or edit tables, or to perform a variety of other tasks. Both the hierarchical file structure shown here and the interface should be immediately familiar to anyone who has used Microsoft Windows. The tool bar at the top allows the user to navigate among ICM's screens, print the options selected, access an on-line help facility, and exit the program.

Q. IS MS. BUCKLEY CORRECT WHEN SHE SAYS THAT ICM IS NOT FLEXIBLE?

A. No, she is not. ICM is very flexible. Nearly all of the assumptions – such as the average spacing between poles – that drive decision rules within the model are user changeable, as are all of the inputs related to material and placement costs. The inputs that cannot be changed via the run time options screens are contained in tables that are easily changed. These tables can be changed from within ICM or, if the changes are numerous or complex, the table can be exported to an external application, modified, and imported back into ICM. An example of such an external

application is Microsoft Excel, a product that is widely available and used by professionals throughout the country. For example, if one wanted to examine the impact of an across-the board increase of 10 percent in material prices, one would need only to do the following:

(1) make a copy of ICM's material database under a new name, such as NEWMAT.db;

(2) point (associate) ICM to this new database;

(3) export the database to a comma-separated file and bring it into Excel;

(4) increase all of the material inputs by 10 percent using an Excel spreadsheet formula;

(5) cut and paste as values the increased material inputs over the original inputs;

(6) save this file as a comma-separated file and import it back into ICM as NEWMAT.db and rerun the model.

Any table can be exported to another application, provided that the application is able to accept comma-separated files. In particular, ICM's output can be extracted for use in an external application – this is how Ms. Marshall's Schedules 2 and 3 were created. After the two sets of costs were exported to an Excel spreadsheet, she was able to easily calculate the shared percentages shown in the schedules. It is also possible to extract ICM's results at the wire center level and perform more complex analyses than this. For example, the deaveraging analysis sponsored by Mr. Dye in his direct testimony was accomplished by exporting the 2-wire loop TELRICs by

CLLI into Excel and performing the work there. Indeed, the statewide average calculation described by Ms. Buckley at lines 158-161 of her direct testimony involved extracting results at the CLLI level and manipulating them in Excel.

Q. IN ORDER TO MAKE CHANGES TO INPUT TABLES, IS IT ALWAYS NECESSARY TO EXPORT THEM TO AN EXTERNAL APPLICATION AND IMPORT THEM BACK INTO ICM?

A. No, it is not. One would simply complete steps (1) and (2) above, make the desired changes from within ICM, and rerun the model. I note that this will preserve the original version of ICM's material database. One does not have to export and import the database in order to accomplish this, contrary to Ms. Buckley's response to Verizon data request VZ-STAFF 1.19.

Q. WOULDN'T IT BE EASIER AND MORE FLEXIBLE IF ALL DESIRED CHANGES TO THE INPUT TABLES COULD BE MADE WITHIN ICM?

A. Well, it is possible to do this, but it is not easier. For example, the across-the-board change to the material inputs I just described could be accomplished within ICM by viewing the values from the model, calculating the 10 percent increase for each input either mentally or using a calculator, and entering the new input values one at a time. I doubt that any party would deem this to be easier, or more flexible, since the material database contains 510 records. At lines 119 through 125 of her direct testimony, Ms. Buckley claims that making input changes in ICM is burdensome because the values are stored in Paradox databases. Her testimony overlooks the

fact that the data must be stored in some fashion to be used by the model. Verizon chose the Paradox databases over, say, a simple ASCII file, in order to reduce disk space needed to store the data and to facilitate the task of processing the information within ICM's code. Paradox was also chosen over other applications, because the databases can be distributed and used without the recipient having a license. Ms. Buckley also overlooks the fact that the ability to export ICM's inputs and outputs to an external application such as Excel places very few limits on the type of analyses that can be performed, and allows the user to select a data analysis tool with which she or he is already familiar. If ICM were entirely self-contained, the types of analysis that could be performed would be limited, and the user would have to learn whatever spreadsheet or database tool that might be incorporated in the model.

Q. PLEASE COMMENT ON THE CHANGES TO ICM'S INPUT TABLES THAT MS. BUCKLEY DESCRIBES AT LINES 110 THROUGH 132 OF HER TESTIMONY.

A. In response to Verizon data request VZ-STAFF 1.18, Ms. Buckley explained that she made changes to ICM's placement cost table (ILLBR.db), but observed no changes in the outputs. To my knowledge, no Verizon employee recognizes the conversation Ms. Buckley describes in her response. In any event, Verizon has mimicked the test she describes by decreasing all inputs in the ILLBR.db table by 10 percent. As one would expect, the resulting costs declined. I note that Ms. Buckley describes a similar, successful, test at lines 128-130 of her direct testimony.

In her response to Verizon data request VZ-STAFF 1.20, Ms. Buckley listed the following changes made concerning the test described at lines 130-132 of her direct testimony:

> Ms. Buckley changed the first six positions (in numbers –29, -28, -28, -28, -28, -28 to all positive numbers) in the column of X coordinate on the demand table, ildemand.DB.

The change she describes has the effect of moving the corresponding demand units from the west side of the wire center to the east. Based on the X coordinates given, only five of the demand units contained any lines, so that moving them has no effect on the amount of modeled outside plant. Moreover, the CLLI that Ms. Buckley selected (ABNGILXDRS0) corresponds to one of the wire centers sold to Citizens. Consequently, the costs for this CLLI do not enter into the calculation of the statewide averages and no change in these averages would have been observed.

Q. DID VERIZON ATTEMPT TO MIMIC THE TEST DESCRIBED BY MS. BUCKLEY WITH A WIRE CENTER THAT HAS NOT BEEN SOLD?

A. Yes. We chose the first wire center in the table that has not been sold, ACLKILAXRS0, and added 20 to the first six populated demand units for this wire center. This had the effect of moving the demand units from the west side of the wire center to the eastern edge. We did not simply change the sign of the X coordinate, since doing so would have created duplicate records with the same X and

Y coordinates.

Q. WHAT WERE THE RESULTS OF THIS CHANGE?

A. The change created a new cluster beyond 12 kf from the central office. The 2-wire loop cost for the wire center went up by 4.6 percent and the statewide average increased by less than one hundredth of a percent. While this is not the sort of input change a user would normally undertake, these results show that Ms. Buckley's test, if properly designed and implemented, produces results in keeping with expectations.

Q. BESIDES YOUR TESTIMONY ABOVE AND YOUR DIRECT TESTIMONY, ARE THERE ANY OTHER FACTS THAT THIS COMMISSION SHOULD CONSIDER IN DECIDING IF ICM IS FLEXIBLE AND EASY TO USE?

A. Yes, there are several. First, while Verizon certainly does not endorse or agree with the changes proposed by Mr. Boyles, the fact remains that he was able to use ICM in order to develop and implement his proposed changes.

Second, there is the fact that other Staff members were able to modify ICM and extract results. In particular, Ms. Buckley's own testimony (lines 135-138) and the responses to Staff data requests VZ-STAFF 1.11 and 1.21 indicate that Mr. Hanson was able to run ICM and extract the results needed for Ms. Marshall's Schedule 2.

Third, ICM does not limit the user to the sizes and types of equipment contained in the filing. As I explain below in my response to Mr. Boyles' testimony, it is easy to

model the placement of a 2-pair drop even though ICM only offers a choice between 3- and 5-pair drops. The same is true with respect to the size of the poles placed by ICM, or with respect to the size of the DLCs. Indeed, it is even possible to estimate the impact of not placing the smallest DLC as I did above in my response to Mr. Hendricks' criticism concerning the number of modeled DLCs.

Fourth, in response to Staff data request JZ 5.11, Verizon explained how it was possible to impose switching costs as modeled by the FCC onto ICM. Again, Verizon does not endorse the results of this exercise in any way, but the fact that it could be accomplished speaks to the flexibility of ICM. In fact, although Ms. Buckley did not consider this response in her evaluation of ICM, the data request stated that its intent was to see if ICM was flexible enough to model the desired switching costs. Similarly, several of the requests made by Staff, (e.g., MAH 1.04) required Verizon to rerun the model and update some of Mr. Dye's exhibits.

Fifth, ICM allows the user to choose among several options with respect to the network that is modeled, or with respect to the costs that are included in the per-unit results. This feature allows the Commission to consider the arguments for or against each option and then rule accordingly.

Finally, Ms. Buckley's ability to duplicate certain results shows that ICM is not so complicated that she is unable to reach a judgement as to whether ICM performs its cost calculations correctly. Indeed, at lines 167-168 of her testimony, she concludes

that her review has revealed nothing which leads her to believe that the model does not calculate costs correctly.

Q. PLEASE COMMENT ON MS. BUCKLEY'S SUMMARY, AT LINES 50-64 OF HER TESTIMONY, OF THE DIFFERENT VERSIONS OF ICM PROVIDED BY VERIZON AS THEY RELATE TO HER ABILILTY TO REVIEW ICM.

A. Version 4.2a was provided on May 2, 2001, and incorporated three changes. The first change related to two PDF files that accompanied the original CD provided in December, 2000. As explained in the transmittal letter signed by Mr. Greg Smith, the original versions of these PDFs were outdated and did not correspond to the actual inputs contained in the model's databases. The second change provided a supporting document for the ICM expense inputs that was inadvertently omitted from the original CD. The last change related to a coding revision related to the number of items in a list used by one of ICM's Pascal routines. The revision corrected an out-of-bounds memory error encountered when the 18kf option was run for Illinois. This revision did not affect the cost results filed by the Company in December, 2000. None of these three changes could have had an impact on Ms. Buckley's review of ICM, since she did not begin that review until June 15, 2001.[10] In any event, the ICM manuals and user guide reviewed by Ms. Buckley were unaffected by these or any subsequent revision.

[10] See the response to Verizon data request VZ-STAFF 1.17.

The third version of ICM, Version 4.4, was provided by Verizon on September 7, 2001. This version was triggered by the discovery and correction of an error in the way ICM handled the Tier A and Tier B placement costs for such items as poles, conduit and cable. Several other minor coding changes were also included in Version 4.4, which were completely described in a narrative accompanying, and contained on, the Version 4.4 CD. Other changes were made to the inputs to insure that property taxes were modeled for the correct accounts, and to reflect downstream effects on the fixed allocator used to recover common costs. None of these changes affected ICM's user interface or the manuals reviewed by Ms. Buckley, and none should have had any impact on the review of ICM described by her.

IV. IRCA'S AND AT&T'S CRITICISMS ARE UNFOUNDED

A. Mr. Hendricks' Testimony

Q. WHAT PORTIONS OF MR. HENDRICKS' DIRECT TESTIMONY DOES THIS SECTION OF YOUR REBUTTAL ADDRESS?

A. This section of my testimony discusses Mr. Hendricks' concerns and recommendations regarding ICM's modeling of customer locations, as discussed at pages 7 and 8 of his testimony.

Q. IS MR. HENDRICKS CORRECT WHEN HE CLAIMS THAT ICM IS A PROXY MODEL BECAUSE OF THE INPUTS RELATING TO CUSTOMER

LOCATION?

A. No, he is not. If there were any truth whatsoever to his claim, then every model that I have seen proffered to estimate the forward-looking costs of UNEs would be a proxy model. Even models that purport to utilize geocoded data of individual customer locations would be proxy models by the standard in Mr. Hendricks' direct testimony, since none of these models have a 100 percent geocoding success rate and must therefore use some sort of surrogate location mechanism. ICM is not a proxy model for the simple reason that it is company-specific, and is not proffered with a set of default inputs for use by any company other than Verizon.

Q. HAS IRCA PROVIDED A DEFINITION OF WHAT MR. HENDRICKS MEANS BY A PROXY MODEL?

A. Yes, they have. In response to Verizon data request VZ-IRCA 1.01, IRCA provided the following:

> Mr. Hendricks' reference was to proxy models that have been reviewed by the ICC and the FCC for purposes of calculating forward-looking costs of carriers in those instances when no company-specific model was available and/or when the regulatory body was interested in using a different means than company-specific cost models for purposes of calculating forward-looking costs for a carrier. For example, the FCC investigated the BCPM, Hatfield (later called HAI), and TECM …. These models are proxy models in the

> sense that, to fullest extent possible, they are based on publicly available information rather than actual company-specific information. In particular, each of these models approximates customer location information from publicly available information rather than through use of actual confidential company records on customer location.

Mr. Hendricks is correct when he asserts that proxy models are based on publicly available information to the fullest extent possible, and that they rely on it in lieu of company-specific information whenever possible. His emphasis on the nature of the customer location issue is misplaced in this definition, however. The distinguishing characteristic between a company-specific model and a proxy model relates to the *nature of all inputs* used – not just those dealing with customer location – and to the purpose for which the model is proffered. With respect to the nature of the inputs in particular, the distinguishing characteristic is not whether the information is publicly available, but whether it is company-specific. For example, ARMIS expense data are both publicly available and company-specific. Use of such data to develop expense inputs to a model moves it away from the proxy end of the modeling spectrum and towards the company-specific end. Virtually all inputs to ICM are company-specific, and the model is proffered only for the purpose of estimating Verizon's forward-looking costs, not those of another company. ICM is the exact opposite of a proxy model.

Q. IS MR. HENDRICKS' CONTENTION THAT VERIZON KNOWS WHERE ITS CUSTOMERS ARE LOCATED AND THAT VERIZON SHOULD UTILIZE THIS INFORMATION IN DEVELOPING THE INPUTS TO ICM A VIABLE RECOMMENDATION?

A. It is not a viable recommendation. Mr. Hendricks has dramatically over simplified the customer location information that exists in the company records. While addresses exist in Verizon's internal records, they are not always associated with actual customer service locations. They may instead only relate to a billing location, such as a post-office box. Many times the billing location may be a single billing address for multiple service locations. Even when the address corresponds to the service location, often it is a rural route address, which does not have a specific location in terms of latitude and longitude associated with it. Finally, customer address information is contained in several information systems that are not easily tied together, and which were never intended to produce location data that could be used in a model.

B. Mr. Boyles' Testimony

Q. WHAT PORTIONS OF MR. BOYLES' DIRECT TESTIMONY DOES THIS SECTION OF YOUR REBUTTAL ADDRESS?

A. This section of my rebuttal testimony responds to Mr. Boyles' claims regarding the alleged inflexibility and closed nature of ICM (Boyles Direct, pp. 5-9) and with his claims concerning the calculation of switch prices, discounts and RTU fees. (Boyles

Direct; pp. 12-18). I also respond to his criticisms of the processor utilization factors (PUF), the call completion ratios, and the engineering, furnished and install (EF&I) factors used by ICM, and with his recommendation concerning marketing costs. (Boyles Direct, pp. 18-21). Finally, my testimony addresses his proposed adjustments to ICM's inputs. (Boyles Direct, pp. 21-25).

Q. PLEASE COMMENT ON MR. BOYLES' CLAIM THAT ICM IS NOT FLEXIBLE AND OPEN.

A. Mr. Boyles bases his claim that ICM is not flexible largely on his contention that it would be necessary to manually enter all 18,615 of the records in the switch investment table if a change is made to the SCIS or CostMod runs. However, this simply is not true. CostMod allows the user to generate a file that is in the format used by ICM. SCIS-IN (the SCIS module used to develop feature and usage costs) allows the user to create a comma-separated file containing the required values that is readily accepted by ICM. The records generated by these two programs represent 83.1 percent of the total records in the file. An additional 9.4 percent of the records are not affected by changes in the SCIS or CostMod runs. Only the remaining 7.5 percent, or 1,397 records would require manual entry, and only if the postulated change was relevant to all DMS-10's, DMS-100's, 5ESS's, and their remotes. Moreover, SCIS-MO (the SCIS module that produces the remaining 7.5 percent of the records) generates a text or PRN file containing the values used by ICM. Developing an interface to load these values into ICM is easily done and can be accomplished, for example, with a commercially available database program or with

common programming languages such as C or Pascal.[11]

Mr. Boyles also claims that ICM is not flexible and open to inspection because the number of user-adjustable inputs is limited to those elements that Verizon has specified in the model's design. He cites as an example the inability to select a 2-wire drop. It is true that the run time options screen has only two drop sizes specified (3-pair and 5-pair). However, as was explained in the response to IRCA data request 3.17, it is not true that a user cannot model the placement of a 2-pair drop. All one has to do is replace the material inputs for, say, the 5-pair drop with the values for the 2-pair drop and then select the 5-pair option. I note also that with respect to this complaint, Mr. Boyles is adopting a different standard of flexibility than AT&T has advocated in the past. For example, in Washington Docket WUTC – 960369, AT&T witness Mercer implied that AT&T's model was superior because it had "many tens of thousands of inputs" even though there were only around 660 inputs "specifically present[ed] for users to vary". (Docket WUTC-960369, Cross Examination Transcripts of Dr. Robert A. Mercer; p. 371; July, 1997.) Mr. Boyles now suggests that limiting the number of inputs presented for users to vary is a model flaw.

Finally, Mr. Boyles claims that there are elements of ICM that are part of its core processing that cannot be changed by using different input values. As an example, he cites ICM's use of a K-means clustering algorithm to model the number and

[11] A review of Mr. Boyles' work papers relating to his adjustment for getting started costs reveals that he is

locations of DLCs in a wire center. Again, Mr. Boyles is embracing a standard that is different than that espoused by AT&T in other proceedings. For example, some versions of AT&T's so-called Hatfield or HAI model placed surrogate geocoded customer locations uniformly along the boundaries of census blocks and also combined all geocoded locations into groups using what the model developers termed a "rasterization" process. Users of these models cannot change these characteristics via simple input changes. Mr. Boyles' criticism rings hollow because it is true of every model, including models that AT&T has vigorously argued to be the best.

Q. PLEASE COMMENT ON MR. BOYLES' CLAIM THAT HE WAS UNABLE TO AUDIT HOW ICM CALCULATES SWITCHED ACCESS END-OFFICE SWITCHING INVESTMENT.

A. I have no reason to doubt that Mr. Boyles failed in his effort to do this. However, his failure is not a flaw of ICM. Rebuttal Attachment DGT-6 is an Excel spreadsheet that develops the end-office switching LRSIC for Anna, Illinois and then shows how the statewide average LRSIC is calculated. Note that this attachment is confidential.

Q. PLEASE COMMENT ON MR. BOYLES' COMPLAINT THAT VERIZON PROVIDED MUCH OF THE SUPPORTING DOCUMENTATION IN PDF FORMAT.

A. Verizon provided the supporting documentation in PDF format in order to insure that

capable of extracting information from such a file.

all parties were viewing the same information in terms of content and location, and as a more efficient substitute for hard copy documentation filling ten large binders. This has been a practice that has worked well in other states, allowing parties to narrow the focus of their requests to those Excel spreadsheets relevant to specific items. I note that Verizon provided AT&T every underlying Excel spreadsheet that was requested by name. Even though Mr. Boyles now complains that he was unable to determine how the processor utilization factors were developed, AT&T did not specifically ask for the underlying files.

Q. PLEASE COMMENT ON MR. BOYLES' COMPLAINT THAT VERIZON DID NOT PROVIDE THE CONTRACTS USED TO PURCHASE THE 5ESS OR GTD-5 SWITCHES.

A. The contracts for the 5ESS and the GTD-5 were not provided because they do not exist. Verizon purchases these switches based on vendor quotes. The only contracts related to switching that Verizon has with these vendors are those relating to RTU fees described above, and those relating to additions to existing switches.

Q. IS MR. BOYLES CORRECT WHEN HE CLAIMS THAT THE SWITCHING COSTS USED BY ICM ARE OUTDATED?

A. No, he is not. Mr. Boyles makes this claim based on the date of the contract with Nortel and the dates of the vendor quotes from AGCS and Lucent. This price information is consistent with the use of 1999 ARMIS data and reflects what Verizon pays for switches from these vendors. In fact, as I explain below, the average switch

discounts used by SCIS and CostMod actually understate the forward-looking switching costs that Verizon faces. Additionally, Mr. Boyles is disingenuous when he tries to support his claim by quoting Peter Huber and Evan Leo at pages 12 and 13 of his testimony. In quoting their report, Mr. Boyles has omitted their source for the statement that switching prices have declined and are expected to decline further. While it is true that Mssrs. Huber and Leo prepared their report in May, 1999, the source of this data is older – it was taken from a database compiled by Northern Business Information in January, 1997. Not only does this precede the "outdated" vendor quotes and contract prices by more than a year, it says nothing specific about the prices that Verizon faces. Mr. Boyles' position that switching costs should be adjusted to reflect an unsupported decrease suggests that his objective is to advocate reduced costs in whatever manner possible, even at the expense of consistency.

Q. DOES MR. BOYLES UNDERSTAND THE FUNCTION OF THE DISCOUNT INPUT VERIZON USED IN ITS SCIS AND COSTMOD RUNS?

A. I don't believe he does. At page 13, he suggests that Verizon should have relied on current list prices and the actual discounts available from current contracts. However, the contract with Nortel does not specify a discount from a "list price," and there are no specified discounts from "list" for Lucent or AGCS. Verizon faces two sets of prices related to switching from each of these vendors. The first set relates to initial switch purchases, and the second set relates to additions to existing switches. The discount inputs used in the SCIS and CostMod runs were developed to scale the list prices used in these models to a level comparable to the switching prices Verizon

pays these vendors for an initial switch purchase. ICM's Investment Adjustment Factor (IAF) input is used to incorporate the pricing for additions into the switching costs used by the model.

Q. PLEASE DESCRIBE HOW THE DISCOUNTS USED AS INPUTS TO SCIS AND COSTMOD WERE DEVELOPED.

A. First, SCIS and CostMod were run with no discount for a set of eight model office clusters for the 5ESS, GTD-5 and DMS-100 switching technologies as shown in the table below:

Cluster Size	Base Unit	Remote 1	Remote 2	Remote 3
700	700	----	----	----
1,700	1,700	----	----	----
3,400	3,400	----	----	----
6,300	5,000	1,300	----	----
10,900	8,300	2,600	----	----
18,500	13,300	2,600	2,600	----
36,200	29,200	2,333	2,333	2,333
90,000	60,000	3,750 <== 8 of these remotes		

For the DMS-10, SCIS was run with no discount for the first five model office clusters shown above. The usage inputs for each of these SCIS and CostMod runs were based on system-wide averages for comparably sized switches. Next, discounts were computed for each of the above configurations based on the total modeled switch costs and on the switch costs resulting from the vendor quotes and the Nortel contract for initial switch purchases. Finally, weighted averages of these discounts

across the cluster sizes were calculated. These weighted averages are the discount inputs used in the subsequent SCIS and CostMod runs for each Verizon Illinois wire center.[12]

Q. IS MR. BOYLES CORRECT WHEN HE STATES, AT PAGE 16, THAT THE AVERAGE DISCOUNT USED BY ICM IS TOO LOW?

A. No, he is not. Mr. Boyles makes this statement based on the observation that the realized discount for Golconda is greater than the average discount used by ICM for this type and size switch. However, Golconda is just one wire center, and the fact that its realized discount is above or below the average discount does not allow Mr. Boyles to draw any meaningful conclusion about ICM. Moreover, if the investment inputs produced by SCIS and CostMod are adjusted to reflect the discount by line size instead of averaging them across the cluster sizes, the switched access LRSICs produced by ICM increase on a statewide basis. Specifically, the LRSIC for end-office switching increases by 13.9 percent, and the LRSIC for tandem switching increases by 18.8 percent. Hence, the use of system-wide average discounts reduces the estimated cost of switching in Illinois.

Q. IS MR. BOYLES CORRECT WHEN HE STATES THAT RTU FEES ARE INCLUDED IN VERIZON'S DISCOUNT CALCULATIONS AND SHOULD NOT BE ADDED AGAIN AS A SEPARATE INPUT TO SCIS?

[12] The development of these discounts are shown in the files "SCIS CostMod Disc Dev.PDF " and "IAF.PDF" in the supporting documentation. The Excel spreadsheets underlying these files were provided to Staff in response to Staff data request JZ 1.6, and to AT&T in response to AT&T data request ATT013.

A. No, he is not. He bases his statement on the incorrect assumption that the per-line charge for operating software in the Nortel contract reflects all of the RTU fees associated with this vendor's switches. As I explained earlier, Verizon purchases RTU fees from all three vendors, both in connection with the switch purchase and under a national contract for RTU fees. The RTU fees purchased under the national contract are above and beyond those included as part of the switch purchase and provide for a standard set of end-user features by switch type as well as upgrades to the operating system over the life of the contract. These RTU fees vary by switch type and are actually paid by Verizon to the vendor.

Q. PLEASE DESCRIBE THE PURPOSE OF ICM'S INVESTMENT ADJUSTMENT FACTOR INPUT AND EXPLAIN HOW IT WAS DEVELOPED.

A. The discount inputs described above reflect only the prices for initial switch purchases. ICM's IAF input is used to reflect the prices for additions, since the cost of every switch in Verizon's Illinois network reflects both sets of prices. The factor is calculated for each of the base unit line sizes shown above. Line and trunk growth for each base unit is calculated over a six-year timeframe using Illinois-specific growth rates, and are priced as additions to existing switches. The IAF input for each base-unit and line-size combination is calculated as the present value of the purchase cost of the initial switch plus the additions, divided by the initial switch cost. The outputs of SCIS and CostMod, which only reflect the initial switch pricing, are multiplied by this factor to produce a blended switch cost that reflects the pricing

for both initial switch purchases and for line additions.

Q. DOES MR. BOYLES UNDERSTAND THE PURPOSE OF ICM'S IAF INPUT?

A. I don't believe he does. At page 17 of his testimony, Mr. Boyles states that Verizon employs the IAF input in an attempt to reflect growth in ICM's calculations. This is not true – as I just explained, the IAF input is used only to produce a blended switch cost that reflects the pricing for both initial switch purchases and for line additions. Its purpose is not to model the impact of forecasted line growth by wire center, and Mr. Boyles' comments about installing only enough lines to handle current demand are consequently not relevant. Likewise, his suggestion that the present value of the additional lines be included in the denominator of the cost-per-line calculations should be disregarded by the Commission. For one thing, there are no cost-per-line calculations contained in the development of the IAF input. Additionally, Mr. Boyles' suggestion would only make sense if one were computing an average cost per line over the entire life of the switch. In order to do this, one would need to extend the analysis beyond the six-year timeframe used by Verizon, and include *all* of the additional vendor equipment that would be needed over the life of the switch. The line and trunk additions used in the development of the IAF inputs do not include such items as additional host/remote links, software upgrades or additional network paths. In order to implement Mr. Boyles' suggestion, these investments would have to be forecasted and included in the development of the IAF inputs. Finally, as I explain below, Mr. Boyles has failed to recognize the linkage between the IAF and EF&I inputs. Any changes in the IAF inputs need to be accompanied by

corresponding changes in the EF&I inputs.

Q. IS MR. BOYLES' CLAIM THAT THE SWITCH COSTS PER LINE GENERATED BY SCIS AND COSTMOD ARE HIGHER THAN VERIZON'S "TARGET" PER-LINE SWITCH COSTS VALID?

A. No, it is not. A review of Mr. Boyles' responses to Verizon data requests VZ-ATT 2.04 and 1.01 reveals that he has based this claim on a comparison of the per-line costs for each of the model office clusters described above with the corresponding per-line costs produced by SCIS and CostMod. Such a comparison is invalid for several reasons. First, the mix of host and remote lines underlying the modeled clusters differs from that of the wire centers in Illinois. Second, line-size is not the only determinant of switch costs – the usage characteristics of each switch are equally important. This can be seen by running a regression of cost-per-line on line size and on indicator variables for the switch technologies used by Verizon in Illinois. The results of this regression analysis show that switch technology and line size explain only 52 percent of the variation in switching costs for Verizon's base unit switches, and only 66 percent of the variation in switching costs for the remote switches.[13] Finally, Mr. Boyles' claim is based on the false premise that there is some target per-line switching cost that Verizon is endeavoring to hit. This simply isn't true -- the values that Mr. Boyles has characterized as "targets" are only used to

[13] The dependent variable in each of these regression equals the modeled investment produced by SCIS and CostMod divided by total switched lines. The independent variables include total switched lines and four indicator variables for the 5ESS, the GTD-5, the DMS-100 and the DMS-10. The indicator variables take the value of 1 or 0, according to the switch type for each wire center. Because they sum to one for each observation, the constant term was omitted from the estimation process. Only wire centers that have not been sold were included in the dataset.

calculate the discount inputs used in the SCIS and CostMod runs. It would be incorrect to force the costs produced by SCIS and CostMod to equal these amounts because doing so ignores the costs differences stemming from the host/remote mix, and from the usage characteristics for each wire center.

Q. DO SWITCHES ALWAYS LINE-EXHAUST AS MR. BOYLES SUGGESTS?

A. No, they do not. Contrary to Mr. Boyles' testimony, switches are limited by both usage and termination capacity. Processors are replaced periodically in switches because they either exhaust or do not have the capacity for new features and functions. In extreme cases, the switch may have to be replaced by a switch with a larger capacity processor. For example, a DMS-10 may be replaced by a DMS-100, not because of line-exhaust, but because the DMS-10 processor did not have capacity to handle the amount of traffic generated in the switch -- even though the line capacity was within the capacity range of a DMS-10. Other switches, such as a GTD-5, that employ a more distributed processor arrangement may have additional processors added as the load on the processors increases. Similarly, there are occasions when 5ESS switches require using switching modules at less than their designed line capacity due to processor limitations. Mr. Boyles is just wrong when he suggests that processors do not exhaust and that their costs are fixed.

Q. ARE THE PROCESSOR UTILIZATION FACTORS (PUF) USED IN SCIS EXTREMELY LOW AS MR. BOYLES CONTENDS?

A. No, they are not. As I explained above, switches can and do exhaust because of both

line and processor limitations. The PUF inputs calculated by Verizon and input into SCIS are consistent with processors reaching exhaust and having to be replaced. The PUF inputs calculated for use in SCIS appear low because the inputs only reflect the call processing portion of the available real time. For example, in the DMS-10 switch, 35 percent of the processor real time is used for administrative tasks such as table updates, switch diagnostics and maintenance functions. So, a PUF input of 10 percent corresponds to an overall processor utilization of 45 percent.

Q. IS IT TRUE THAT SCIS AND ICM USE DIFFERENT VALUES FOR CALL COMPLETION RATIOS?

A. Yes, it is. The call completion ratios used in SCIS-IN were set at 100 percent while the corresponding user-adjustable input in ICM was filed as 65 percent. The reason for this is to allow the user to vary the call completion ratio without having to rerun SCIS-IN. Using a ratio other than 100 percent in SCIS-IN as Mr. Boyles suggests would only increase the unit investments that are used as ICM inputs, thereby increasing the costs produced by ICM.

Q. SHOULD MR. BOYLES' ELIMINATION OF ALL SALES, MARKETING AND ADVERTISING COSTS FROM THE SWITCHED ACCESS LRSICS BE ADOPTED BY THE COMMISSION?

A. No. Mr. Boyles bases his recommendation on the unsupported claim that Verizon does not incur marketing costs for switched access. However, this is simply not the case. The inputs used by ICM to model sales, marketing and advertising (SMA)

costs are based on the expenses recorded in three accounts:

(1) Product Management (account 6611);

(2) Sales (account 6612); and

(3) Product Advertising (account 6613).

Account 6611 includes the costs incurred in performing administrative activities related to marketing products and services. These activities include competitive analysis, product and service identification and specification, test market planning, demand forecasting, product life cycle analysis, pricing analysis, and identification and establishment of distribution channels. Examples of specific groups and activities within this account that relate to switched access include the Market Strategies group which is responsible for carrier market analysis and customer segmentation, and the Network Access Services group which is responsible for the management of the network access functions, including allowing other carriers' access onto Verizon's network.

Account 6612 includes costs associated with the determination of individual customer needs, development and presentation of customer proposals, sales order preparation and handling, and preparation of sales records. Examples of specific groups and activities within this account that relate to switched access include the National Sales Account group which is responsible for network access sales to other carriers, including AT&T, MCI, and Sprint. These activities include sales, sales

follow-up, customer service, and customer assurance. Also, Carrier Operations is responsible for running the day-to-day activities of the carrier market business segment, including operations support.

Account 6613 includes costs incurred in developing and implementing promotional strategies to stimulate the purchase of products and services. This account excludes nonproduct-related advertising, such as corporate image, stock and bond issue and employment advertisements. Examples of specific groups and activities within this account that relate to switched access include the Product Marketing group which acts as the communications liaisons for Verizon to plan and coordinate direct marketing efforts for all carrier markets customers. Product Marketing deals primarily with Product Management in coordinating new product introductions and specific product promotions as well as other efforts.

Mr. Boyles' response to data request VZ-ATT 2.05 indicates that, in lieu of determining which portion of the above accounts should be excluded from switched access costs, he simply eliminated all of the dollar amounts labeled as marketing costs. Once again, Mr. Boyles' recommendation suggests that his main objective is to advocate reduced costs in whatever manner possible.

Q. DO THE SMA INPUTS USED BY ICM TO DEVELOP SWITCHED ACCESS COSTS RECOVER ALL OF THE COSTS RELATED TO THE ABOVE ACCOUNTS?

A. No, they do not. Only 28 percent of account 6611, 12 percent of account 6612, and 4 percent of account 6613 were used in the development of the SMA inputs relevant to switched access. The remainder of these accounts was used to develop SMA factors related to retail services such as residential and business basic exchange service, and special access services.

Additionally, the SMA inputs were developed as a percent of revenues but are applied to the total of depreciation, return, taxes, maintenance and support, and billing and collection expenses. Consequently, there is a built-in shortfall in the recovery of the SMA costs. This is shown by the following equations:

(a) SMA Factor = SMA Costs / Revenues;

(b) Revenues = (SMA Costs + Remaining Direct + Common Costs).

Multiplying equation (b) by equation (a) produces:

(c) SMA Costs = (SMA Factor x SMA Costs) + (SMA Factor x Remaining Direct) + (SMA Factor x Common Costs).

Solving for SMA Costs produces:

(d) SMA Costs = [(SMA Factor x Remaining Direct) + (SMA Factor x Common Costs)] / (1 – SMA Factor)

Because ICM models SMA costs just as the first term in the numerator of equation (d), there is an inherent shortfall in the amount of such costs included in the switched access LRSICs and UNE TELRICs. Based on the Company's filed inputs, the shortfall equals 14 percent for the switched access LRSICS.

Q. SHOULD THE COMMISSION ADOPT MR. BOYLES' RECOMMENDATION CONCERNING THE ENGINEERING, FURNISHED AND INSTALLED (EF&I) FACTORS?

A. No, they should not. Mr. Boyles has based his recommendation on his unsupported opinion that ICM's EF&I inputs appear to be too high. He then suggests that the combined EF&I input for each switch type and line size be set at 30 percent based only on a recommended decision by an Administrative Law Judge (ALJ) in an as yet undecided case before the New York Public Service Commission. Not only is the ALJ's decision on this issue badly reasoned, Mr. Boyles has also not considered whether the basis underlying the 30 percent EF&I factor is consistent with ICM's EF&I inputs.

Q. IS THE 30 PERCENT CONSISTENT WITH ICM'S EF&I INPUTS?

A. No, it is not. In the New York proceeding, AT&T initially proposed that Verizon New York's EF&I factor be reduced to 25 percent. This 25 percent was made up of two components:

(1) 15 percent for vendor engineering and installation; and

(2) 10 percent for Verizon New York's own engineering and installation.

In explaining the recommended 30 percent EF&I, the ALJ wrote:

> AT&T's 10% figure is not well supported and seems unduly low, but in view of the record and Verizon's burden of proof, a telephone company engineering and installation factor of 15% appears fair and reasonable, making for an overall EF&I factor of 30% rather than Verizon's proposed 43.5%.

It is clear that the 30 percent only reflects engineering and installation. Instead of comparing the 30 percent value to ICM's total EF&I inputs, Mr. Boyles should have compared it to the portion corresponding just to engineering and installation labor. Across all of the retained wire centers in Verizon's Illinois network, the average of the engineering and installation labor components is 31.3 percent, nearly equal to the 30 percent espoused by Mr. Boyles.

Q. ARE THERE ANY OTHER REASONS WHY MR. BOYLES' 30 PERCENT RECOMMENDATION SHOULD BE DISREGARDED?

A. Yes, there are. First, it is at odds with the FCC's stated intent that the TELRIC standard reflect the costs ILECs *actually expect to incur* in making network elements available to new entrants. The 30 percent is not based on any data relevant to

Verizon Illinois whatsoever and, consequently it is not relevant to the costs that Verizon Illinois will incur.

Second, Mr. Boyles' recommendation ignores his proposal that ICM's IAF factor be reduced to reflect his proposed switching costs. ICM's EF&I inputs are based on material investments that include the application of the IAF input. If the IAF input is reduced, then the EF&I factors must be increased accordingly. Even the ALJ in the New York case recognized the linkage between the EF&I input and the switch investment upon which they are based. In footnote 275 of his recommended decision, the ALJ wrote:

> The 30% factor should be computed with reference to Verizon's claimed switching material costs. There is no basis for assuming that the lower material cost I am recommending will result in lower EF&I costs in absolute terms, so the EF&I percentage, computed with reference to the recommended material costs, will be higher than 30%.

Mr. Boyles' failure to acknowledge the relationship between his IAF and EF&I proposals again suggests that his objective is to advocate reduced costs in whatever manner possible, even at the expense of consistency.

Third, Mr. Boyles has proposed a downward revision in ICM's EF&I inputs that far

exceeds the 135 basis point decrease recommended by the ALJ for Verizon New York. The average EF&I input across all of Verizon's Illinois switches is 51.8 percent. Thus, Mr. Boyles' proposal represents a decrease of 218 basis points, more than 1.6 times as great.

Finally, Mr. Boyles proposed adjustment is equivalent to setting ICM's combined EF&I input to 30 percent across the board, regardless of switch type or size. This is not a realistic proposal, since the amount of EF&I costs is not a constant percentage across all switches. For example, even though the relative amount of engineering cost declines with switch size, Mr. Boyles' proposal implies that it does not. Similarly, the amount of engineering and installation labor varies across switch vendors, and Mr. Boyles' proposal ignores this relationship.

Q. ARE MR. BOYLES' ADJUSTMENTS TO THE CALL SETUP INVESTMENTS JUSTIFIED?

A. No, they are not. CostMod does not assign the costs identified as getting started costs exclusively to usage as does SCIS – the portion of these costs that are associated with line terminations are assigned to line termination costs. Consequently, Mr. Boyles' adjustments to the GTD-5 switching investments are incorrect and unwarranted.

More important, only a fraction of the costs that SCIS identifies as getting started costs are associated with line terminations. By excluding one hundred percent of

these costs from usage, Mr. Boyles' adjustment is guilty of the same flaw he charges SCIS with and should be rejected by the Commission.

Q. HOW SIGNIFICANT IS THE ALLEGED FLAW CONCERNING SCIS'S ASSIGNMENT OF GETTING STARTED COSTS?

A. It is not very significant at all, certainly not as significant as Mr. Boyles' "correction" would indicate. I have identified the proportion of getting started costs attributable to line termination for each of the three switching technologies whose costs are modeled by SCIS. Using the getting started costs identified by Mr. Boyles in his work papers,[14] I recalculated the adjustment necessary to remove just the line termination portion. The table below shows the results for Mr. Boyles' "correction" and for the adjustment that only excludes the line termination portion.

	End Office Switching	**Tandem Switching**
Filed LRSIC	0.005369	0.002047
Boyles' Adjustment	0.002676	0.001357
Pct Change from Filed	-50.2%	-33.7%
Line Term Only Removed	0.005167	0.001998
Pct Change from Filed	-3.8%	-2.4%

It is clear from the above that Mr. Boyles has greatly over-estimated the impact of SCIS's treatment of getting started costs. His proposed decreases in costs are more

[14] The results reported here are predicated on finding no errors other than erroneous assumptions in Mr. Boyles' getting started adjustment. Note that the results reported for Mr. Boyles' correction do not include

than 13 times greater than the decreases that result when only the line termination portion of the getting started costs are excluded from usage.

Q. WHAT IS THE IMPACT ON THE PORT TELRIC THAT RESULTS FROM THIS RECLASSIFICATION OF GETTING STARTED COSTS?

A. If only the line termination getting started costs are excluded, then the 2-wire port TELRIC increases by $0.11 or 5.1 percent. If Mr. Boyles' adjustment is made, excluding that for the GTD-5's, the TELRIC increases by $1.06, or 48.5 percent.

Q. SHOULD THE COMMISSION ADOPT MR. BOYLES' ADJUSTMENT TO ICM'S IAF INPUT?

A. No. Mr. Boyles' analysis contains several errors and is conceptually flawed. For example, there are numerous instances where he used a per-line investment based on a host/remote cluster for a wire center that is a stand-alone base unit, and vice versa. There are also many instances in which he used a per-line investment corresponding to a cluster size smaller than the total of the host and remote lines for a group of wire centers. Finally, Mr. Boyles entered his proposed values for the IAF inputs in the ILSWINVr.db table, and set the corresponding input in the ILEFI42.db table equal to one. As a result of this error, Mr. Boyles did not obtain his intended results. Instead, the results reflect only the switching investments produced by SCIS and CostMod, along with his other modifications to the EF&I inputs and to the call setup investments. I note that these errors are Mr. Boyles' alone and are not indicative of

any of the other adjustments he has proposed in his testimony.

any flaw in ICM.

Q. WHY IS MR. BOYLES' ADJUSTMENT TO ICM'S IAF INPUT CONCEPTUALLY FLAWED?

A. Mr. Boyles' recommendation would model switching costs as if switches were placed in each wire center solely on the basis of the per-line costs developed for the model clusters described above. However, as I explained earlier, the costs associated with the model clusters are not "targets" that ICM is seeking to hit, nor do they account for the variation in switching costs due to the usage characteristics or the host/remote mix found in Verizon's Illinois wire centers. Additionally, Mr. Boyles' use of the average per-line cost for each cluster, rather than the per-line cost for each base unit or remote, biases his results downward. Mr. Boyles' proposal would also result in more than eighty percent of the wire centers being served by a Nortel switch. This greatly increases the reliance of Verizon Illinois on a single vendor. Mr. Boyles' recommendation is also flawed because he has not considered whether Nortel and Lucent could in fact provide the 270 base units and remotes necessary to implement the proposal.

While any of these flaws are sufficient for the Commission to reject Mr. Boyles' recommendation, the most serious flaw is that Verizon is simply not going to replace the switches in its wire centers with the switch with the minimum of the so-called "target" cost per line, even if these "targets" were indicative of the cost of doing so. Mr. Boyles' proposal is analogous to AT&T's past proposals with respect to the

sharing of buried local outside plant facilities. In other jurisdictions -- for example, Florida -- AT&T has argued that the modeled sharing percentage for buried plant should greatly exceed actual experience because sharing opportunities will be greater in an unbundled environment, and because opportunities exist for sharing with other industries that are greater than have been experienced in the past. Such proposals are ludicrous on their face, as the Florida Commission found:

> While this proceeding is to determine the cost of a forward-looking scorched node network, there needs to remain a basis in reality if the costs developed for the network are to have any relevance to the cost of basic local telephone service. We believe that assuming sharing percentages which require, for example, power and cable TV companies to rebuild their networks so that more of the cost of a telephone network can be shifted to other industries, means a network severed from reality. (Order, Docket No. 98-0696TP; p. 129; January, 7, 1999).

Mr. Boyles' IAF adjustment adopts a similar, scorched-node approach that has no basis in reality and should be rejected out of hand.

V. SUMMARY

Q. PLEASE SUMMARIZE THE PORTION OF YOUR REBUTTAL TESTIMONY DEALING WITH THE MAJOR CRITICISMS OF ICM.

A. The main criticisms levied against ICM are unsupported and without merit. Specifically:

(1) ICM does not produce a gold-plated network and it does not produce costs that are too high. The investment modeled by ICM is within 1 percent of the reproduction cost of the entire network, and is less than the reproduction cost for switching and for circuit equipment.

(2) Simple comparisons of the costs produced by ICM to existing rates are flawed because they do not account for differences in the underlying cost methodologies. When these differences are recognized, it is seen that the cost increases are either insignificant or nonexistent.

(3) The local OSP network modeled by ICM is the correct one, given the FCC's requirements for TELRIC studies and the current state of modeling technology. ICM does not model too many DLCs, and the NGDLCs modeled by ICM are the correct forward-looking technology. Moreover, the "traditional" loop carrier advocated by Mr. Koch is not a forward-looking technology.

(4) Contrary to Mr. Boyles' testimony, the GTD-5 is a forward-looking switch and ICM's use of it, along with the 5ESS, the DMS-10, and the DMS-100 is correct.

In particular, Mr. Boyles is simply wrong when he claims that these switches are too large for the wire centers Verizon serves in Illinois.

(5) There is no requirement that a forward-looking cost study be based on forecasted demand data or budgeted expense data. Moreover, ICM's use of 1999 ARMIS data – with forward-looking adjustments – is correct and relevant to this docket because the costs being estimated are the costs of the entire network, not just a single service.

(6) No party has shown that ICM and the Company's cost study are not in compliance with the Commission's Administrative rules. To the contrary, I have shown that each claim of noncompliance to be wrong and unsupported.

Q. PLEASE SUMMARIZE THE PORTION OF YOUR REBUTTAL TESTIMONY DEALING WITH MR. KOCH'S OTHER CRITICISMS OF ICM.

A. The Commission should disregard Mr. Koch's recommendation that none of the local loop networks resulting from ICM's three copper loop length choices be accepted. All three of ICM's copper loop length restrictions model a local loop network that will not impede advanced services. Further, the 18kf option complies with the Revised Resistance Design standard used to lay out local loops on a wire-center wide basis. The choice faced by the Commission is between a modeled network that meets both the FCC's definition and that contained in the Public Utilities Act (ICM's

12kf, 6 mbps option), or one that just meets the definition contained in the Public Utilities Act (the18kf option).

The Commission should also disregard Mr. Koch's suggestion that 2000 census data be used in the modeling of customer locations. The data required to do this did not exist at the time Verizon was required to file its study, and do not exist today.

Q. PLEASE SUMMARIZE THE PORTION OF YOUR REBUTTAL TESTIMONY DEALING WITH MR. ZOLNIEREK'S OTHER CRITICISMS OF ICM.

A. Mr. Zolnierek's testimony dealing with the variance in the copper/fiber mix between the existing and modeled network should not be a source of concern. The difference results only from the use of fiber-fed DLCs in the model, which is the forward-looking technology. Moreover, the combined total of copper and fiber sheath feet in the modeled network is one percent less than the combined total in the actual network. This validates ICM's use of road feet data to constrain the amount of copper distribution and feeder facilities placed.

Likewise, Mr. Zolnierek's recommendation that ICM be restricted to a single network should be ignored. ICM models two local loop networks to reflect the requirements that an unbundled loop must be handed off at a voice grade level. Verizon's approach to estimating the cost of meeting this requirement is correct and reasonable.

Finally, Mr. Zolnierek is wrong when he maintains that Verizon has modeled switching costs in a manner that is inconsistent with the way in which they are incurred. His testimony is contrary to the fact that switching costs are usage sensitive, and is in direct opposition to earlier findings of this Commission. His suggestion that a CLEC should be charged on a per-line basis for a port and all of the associated usage is based on faulty reasoning: if it were correct, then it would also be true that local service should be charged on a flat-rate basis instead of on a measured basis.

Q. PLEASE SUMMARIZE THE PORTION OF YOUR REBUTTAL TESTIMONY DEALING WITH MS. MARSHALL'S OTHER CRITICISMS OF ICM.

A. Contrary to Ms. Marshall's testimony, the special ICM run that she requested provides a reasonable estimate of Verizon's forward-looking costs excluding the costs related to sporting events. No further adjustment is required, since the account in which expenses for corporate image-advertising are recorded has a zero balance.

My testimony has explained how ICM assigns those costs it labels "shared," and the issue is not whether they should be allowed or disallowed but, rather, how they should be recovered. The variation in the markups for these costs calculated by Ms. Marshall stems from differences in the amount and mix of telephone plant used by each service, and is to be expected.

Ms. Marshall is correct when she says that the fixed allocator used to recover common costs will need to be recalculated once all adjustments to ICM are determined. In addition to changes in ICM, the allocator needs to be recalculated to correct a "calibration shortfall" inherent in the model.

The total level of the costs ICM labels as "shared" is not unreasonable: my testimony shows that excluding these costs from the direct costs increases the allocator to 26.89 percent, below Ms. Marshall's recommended limit of 28.86 percent.

Verizon's cost study reflects a reduction in expenses equal to 50 percent of the savings resulting from the merger between GTE and Bell Atlantic. This is consistent with the order approving the merger, and Ms. Marshall's recommendation that all of the merger savings be included in the study should be disregarded. Similarly, no further adjustment is needed to reflect the process re-engineering savings described by Ms. Marshall. These savings are not merger-related and, in any event, are already reflected in the 1999 ARMIS data used as a starting point to model expenses.

Finally, Ms. Marshall's contention that any increase in demand will mean that Verizon's shared and common costs will be spread over a larger pool of customers and result in lower unit costs is wrong. It rests on the unsupported assumptions that shared and common costs are stagnant, that other costs will not increase, and that the

per-unit incremental costs arising from the increased demand are less than the per-unit costs produced by ICM.

Q. PLEASE SUMMARIZE THE PORTION OF YOUR REBUTTAL TESTIMONY DEALING WITH MS. BUCKLEY'S CRITICISMS OF ICM.

A. Ms. Buckley is incorrect when she says that ICM is difficult to use and is not flexible.

With respect to ease of use, she has given no weight to the incorporation of a user interface that is similar to that used by Microsoft Windows, and she likewise has given no weight to the ability to export ICM's inputs and outputs to external applications such as Microsoft Excel. In particular, this last capability capitalizes on most users' existing skill sets and places very little restrictions on the nature of the external analysis or data manipulation.

With respect to flexibility, Ms. Buckley has overlooked the fact that nearly all of the assumptions contained in ICM that drive decision rules within the model are user-adjustable. Many of these inputs can be changed simply by entering the desired values on a run time options screen, or by making the desired selection from the options presented on the screen. Inputs that are contained in tables can be easily viewed and changed within ICM, or exported to an external application, changed and imported back into ICM. Contrary to Ms. Buckley's response to Verizon data

request VZ-STAFF 1.19, it is not necessary to export the table and import it back in order to preserve the integrity of the original values contained in a database.

With respect to Ms. Buckley's testimony at lines 110-116, and to her response to Verizon data request VZ-STAFF 1.18, I note that I have been able to mimic the test described and obtain results consistent with expectations. The same is also true for Ms. Buckley, as she states at lines 128-130 of her testimony. The results Ms. Buckley reports at lines 130-132 of her testimony, and that she describes in her response to Verizon data request VZ-STAFF 1.20, were obtained because Ms. Buckley chose a wire center that had been sold to Citizens. Consequently, no change in the statewide average would have been observed, since these wire centers are excluded from the statewide average calculation. If the test is properly designed and implemented, it produces results consistent with expectations.

While Verizon does not endorse or agree with the changes proposed by Mr. Boyles, the fact that he was able to manipulate ICM for his purposes speaks to ICM's flexibility, as does Mr. Hanson's ability to run the model and extract results. ICM's choices for such items as poles or DLC sizes are user-adjustable – it is even possible to model the impact of placing a 2-pair drop instead of the 3- and 5-pair choices contained in the Company's filing. In order to explore ICM's flexibility, Staff asked for instructions on how to model switching costs in a manner consistent with that espoused by the FCC. Although Ms. Buckley overlooked this request, the response demonstrated that ICM does possess this flexibility. Finally, Ms. Buckley's own

conclusion that her review of ICM revealed nothing to suggest that it does not perform its calculations correctly shows that ICM is not so complicated as to prevent such a judgement being made.

While it is true that Verizon has submitted three versions of ICM since December, 2000, none of these changes has impaired Ms. Buckley's ability to review ICM. In particular, the second version was submitted before she began her review in June, 2001, and none of the revisions affected the ICM manuals and user guide, or the user interface.

Q. PLEASE SUMMARIZE THE PORTION OF YOUR REBUTTAL TESTIMONY DEALING WITH MR. HENDRICKS' OTHER CRITICISMS OF ICM.

A. Contrary to Mr. Hendricks' assertions, ICM is not a proxy model. Use of publicly available data for customer location is not what distinguishes a proxy model from a company-specific model. The distinguishing characteristics relates to the nature of all inputs used and to the purpose for which the model is proffered. ICM is the exact opposite of a proxy model, because it relies on company-specific inputs and because it is not proffered for use by any other LEC. Moreover, Mr. Hendricks' recommendation that Verizon's internal records be used to model customer locations is not viable and should be disregarded by the Commission.

Q. PLEASE SUMMARIZE THE PORTION OF YOUR REBUTTAL TESTIMONY DEALING WITH MR. BOYLES' OTHER CRITICISMS OF ICM.

A. Mr. Boyles' testimony that ICM is not flexible and open is based on false and unfounded claims that rely on standards contrary to those previously espoused by AT&T. Although Mr. Boyles was unable to audit how ICM calculates end-office switching costs, this is not a flaw of ICM – Rebuttal Attachment DGT-6 accomplishes what Mr. Boyles failed to do.

Contrary to Mr. Boyles' testimony, the switching costs used by ICM are not outdated. Moreover, Mr. Boyles' claim that switching costs are expected to decline is based on an old forecast that says nothing specific about Verizon and is a one-sided attempt to adjust inputs for the purposes of obtaining lower cost results.

Mr. Boyles does not understand the purpose or the development of the discount inputs used by Verizon in its SCIS and CostMod runs. In particular, he has mischaracterized the costs of the model clusters used to develop these discounts as "target" costs, and his reliance on them to adjust ICM's switching costs ignores the impact of the differences in the usage characteristics and the host/remote mix of Verizon's Illinois wire centers. His testimony regarding RTU fees and Verizon's discount calculations is contrary to fact and should not be relied on. Similarly, Mr. Boyles does not understand the purpose or the development of the IAF input, and his testimony regarding growth issues should be ignored.

Mr. Boyles' testimony that switches only line-exhaust is incorrect, as is his claim the ICM's PUF inputs are too low. Contrary to Mr. Boyles' testimony, Verizon's use of a 100 percent call completion ratio in its SCIS runs is valid and is not inconsistent with the input used by ICM. In any event, using an input less than 100 percent would only increase the costs produced by SCIS.

Mr. Boyles' proposal of an across-the-board elimination of marketing costs should be disregarded. The SMA inputs used to model these costs are appropriate and exclude costs associated with end-user markets. Moreover, the method used by ICM to model these costs understates their level by 14 percent.

Mr. Boyles' recommendation of a 30 percent EF&I factor is flawed. It is based only on a recommended decision by a New York ALJ, and is not relevant to Verizon's Illinois operations. Moreover, the 30 percent value covers only engineering installation labor and is not comparable to the EF&I input used by ICM. Mr. Boyles' proposal for the EF&I input ignores his proposal to adjust ICM's switching costs, even though the linkage between the two inputs was explicitly recognized in the recommended decision he relies on. His proposed decrease in ICM's EF&I inputs far exceeds that recommended by the New York ALJ – it is more than 1.6 times as great. Finally, Mr. Boyles' proposal ignores the fact that EF&I costs are not constant across all switch sizes and types.

Mr. Boyles' adjustment to ICM's call setup investments suffers from the same flaw he claims exists for ICM. If, instead, only the call setup investment related to line terminations is removed, the resulting decrease in costs is an order of magnitude smaller than the decrease espoused by Mr. Boyles. His adjustment to call setup costs should be ignored by the Commission.

Finally, Mr. Boyles' adjustment to the ICM's IAF input is flawed both in its implementation and conceptually. In particular, Mr. Boyles has once again mischaracterized the costs of ICM's model clusters as "targets" and would ignore the differences in costs that arise from differences in usage characteristics and in the host/remote mix in Illinois. Mr. Boyles' proposed wholesale replacement of 270 switches in Illinois is simply too divorced from reality to have any relevance to the cost of switched access service and should be rejected.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, it does.